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SURGICAL TREATMENT OF ACUTE AND CHRONIC PANCREATITIS.*

BY FRED B. LUND, M.D., BOSTON.

THOSE surgical problems which have been set tled and standardized are the least interesting from the point of view of discussion. It becomes evident to the student of surgical literature that the most fertile subjects for discussion are those which we know least about; among these subjects is that of disease of the pancreas. And yet there are certain indications in pancreatic disease for surgical interference of a varied character. These indications may be acute and imperative, as in acute hemorrhagic pancreatitis with fat necrosis, or may concern the prevention of invalidism from chronic pancreatitis, or the alleviation of certain of the symptoms of an inevitable progressive disease, such as the jaundice attending upon cancer of the pancreas. Now, the pancreas is the most deeply seated of the abdominal organs and is, strange to say, the most important of them .... The protection due to its position is in proportion to its importance, but, on the other hand, it is sensitive, easily thrown out of balance and easily injured. Its relation as to the digestion of proteids, starches, and especially fats, is well known to you all, and I presume you have also, as I have, myself, an indefinite idea about those minute collections of cells known as the islands of Langerhans and their relation to diabetes through the effect of the internal secretion of the pancreas on sugar metabolism.

Acute pancreatitis and its relation to fat necrosis we have known since the classical work of Fitz in 1889. In our student days, we were taught the overwhelming character of this acute form of the disease, the sudden onset of the pain (which we now believe to be due to the stretching of the adherent peritoneum across its anterior surface by the swelling of the organ), the fact that it usually occurred in obese, middle-aged alcoholics, the resemblance to acute intestinal obstruction (due to the paralysis of the colon from the acute inflammatory process, in close and retroperitoneal relation to it) and the common, rapidly fatal termination. Also the accompaniment of fat necrosis, due to the liberation of the fat-splitting ferment of the pancreatic secretion, and the overwhelming hemorrhage from the necrosis of the blood vessels of this vascular organ, which added so much to its immediate terrors. Then we learned that if the patient survived the immediate onset, a general necrosis of the pancreas with abscess usually filling the lesser peritoneal cavity, or local necrosis, single or multiple, might result. Surgeons in the nineties, finding evidence of suppuration and following the maxim, "*ubi pus ibi evacua*," found that local abscess of the head of the pancreas might be drained through a median abdominal incision, attacking the organ either through the gastro-hepatic omentum above the lesser curvature, or through the gastro-colic omentum be-

* Read before the Vermont State Medical Society on Oct. 14, 1921.

low the stomach, and, in some instances, life might be saved. Abscess of the tail of the pancreas (less common) and those which filled the lesser peritoneal cavity might be drained through a retroperitoneal incision in the left flank.

Then it was found that through a median epigastric incision, certain of the acute hemorrhagic cases might be successfully attacked, and by scoring with the knife the tightly stretched peritoneum in front of the swollen organ, clotted and fluid blood might be allowed to escape, the tension and infection relieved, and the patient recover. Then many of us began to notice the association of pancreatitis with disease of the biliary passages, notably the presence of stones in the gall-bladder and common duct, until, in 1901, Opie, in an autopsy upon a case of acute pancreatitis operated upon by Halstead, found a small ovoid stone blocking the papilla of Vater in a case where the duct of Wirsung and the common bile duct united above a common ampulla in such a way that the blocking of the duct at the outlet might cause the bile, infected already, to ascend into the pancreas, become distributed through its finer ramifications and set up an acute inflammation. There seemed no doubt that in this case the entrance of the bile was the cause of the pancreatitis, and it was suggested that the drainage of the bile, through an opening in the gall-bladder or common duct, might be the important step in the treatbent of acute or subacute pancreatitis. Flexner, and others, showed that the injection of bile, acids and even oil into the duct of Wirsung, in animals, would cause acute pancreatitis, and the origin of acute pancreatitis began to be attributed to the entrance of bile into the common duct. But it was found that only an exceptional arrangement of the common and pancreatic ducts would allow the bile blocked by a stone to enter the duct of Wirsung. When this duct and the pancreatic ducts open by two separate openings close to each other in the papilla, as they not infrequently do, such blocking would be impossible, nor would it be produced when the duct of Santorini, as is sometimes the case, is the chief drainage canal of the pancreas, because a free anastomosis between the two ducts then enables either of them to take on the chief drainage function. Furthermore, in only a few of the autopsies upon acute pancreatitis were the anatomical conditions found such as to show that such a stone, though not found at the autopsy, might have blocked the duct long enough to cause pancreatitis, and then have been passed.

Thus it becomes evident that in certain cases of pancreatitis the pressure of blocking stones in the papilla could not have been the cause of the disease, nor could drainage of the bile system effect a cure.

The entrance of duodenal contents under pressure began to be suspected as the cause of the disease. But the duodenal contents ordinarily flow harmlessly past the papilla of Vater without entering it, and water injected under pressure, into the duodenum tied above and below, closes the papilla like a valve, and no fluid enters. Duodenal contents might conceivably enter a duct dilated by the recent passage of a stone, if back pressure were produced by coughing or vomiting sufficient to force them back, but this would be an unusual condition of things. Archibald, of Montreal, who has done a lot of thinking and experimentation on this subject, concluded that the so-called sphincter of Oddi, a band of circular muscular fibres surrounding the duct at the papilla of Vater, might, by spasmodic contraction, close the opening of the duct in such a way that bile might, when the anatomical relations of the ducts were suitable, be forced back into the pancreas by internal pressure. But the internal pressure is low, as shown by experiments by Judd and Mann, except during the actual moment of vomiting, and pancreatitis occurs in cases where the favorable anatomical relations do not exist. So that we are forced to believe, even if we admit—as I think we must—that blocked drainage is the cause of a limited number of cases of pancreatitis, that in a still larger number there must be some other cause.

In the limited number of cases due to blocking of the duct by a stone, removal of the stone, and drainage of the ducts, might be an effective treatment; but what of the larger number of cases in which this would not be the case? In the late nineties and early part of this century, surgeons, in operating upon the right upper abdominal quadrant, began to observe variations in the size and consistency of the head of the pancreas, and sometimes of the entire organ, and to make a diagnosis of chronic pancreatitis, which was believed to be an inflammatory swelling due to the entrance of bile or infected fluid through the ducts, and was treated by drainage of the supposedly, or really, infected bile through a cholecystostomy.

Many pathologists denied the accuracy of the surgeon's observations, and rightly called attention to the normal variations in the size and consistency of the pancreas, which might attend the presence or absence of digestive activity, etc. But, associated often with gall-stone disease, with cholecystitis or adherent ulcer of the posterior surface of the stomach, or even with retroperitoneal infection from appendicitis, these swellings began to be found. Meanwhile pathologists, studying chronic pancreatitis, found that such a disease did exist, that there was both an interlobular variety, characterized by the formation of a large amount of connective tissue between the lobules and a hardening and contraction of the gland

(and this was not infrequently accompanied by stones in the bile passages or even in the duct of Wirsung, which might, of course, block up secretion); and an interacinar variety, where the connective tissue lay between the acini. This form did not contract the gland so much, but hardened it. In this latter form the islands of Langerhans were more apt to be affected, and glycosuria was often a symptom. Might not the swelling and enlargement found so often by the surgeon be the preliminary stage of one of these processes?

Now, as our knowledge of gall-bladder disease has progressed, we have come to believe that the primary infection which is the cause of cholecystitis and stones, takes place not by the actual passage of infected bile up the cystic duct into the gall-bladder, but that the infection reaches the walls of the gall-bladder through the lymphatics or blood vessels, from the liver, with which the gall-bladder lies in such close contact, and that when the infection of the bile and stone formation, with all its manifold ill effects, takes place, the organisms are first found in the wall of the gall-bladder, and arrive there through the blood or lymphatic vessels.

In cholecystitis, with and without stones, we almost invariably find the gland at the neck of the gall-bladder swollen. The lymphatics of the liver and the gall-bladder anastomose freely around the common bile duct and the head of the pancreas, with the peripancreatic lymph ducts and nodes; these latter extend freely in between the lobules and even the acini of the glands. The interlobular and interacinar pancreatitis of the pathologists concern this very tissue in which the lymphatics are situated. A theory of the invasion of the pancreatic lymphatics from the inflamed gall-bladder, stomach, or retroperitoneal tissue, would explain these cases of both acute and chronic pancreatitis which could not be explained by invasion from the ducts. The adoption of such a theory would suggest for the treatment of chronic pancreatitis, not the (at best, temporary) drainage of the infected bile through a cholecystostomy, but a removal of the source of infection by a cholecystectomy.

The theory of infection by the lymphatic route has been championed in this country by Deaver and Sweet, of Philadelphia, on the basis of clinical experience and extensive and thorough experiment. The removal of the gall-bladder is practised in the Mayo Clinic as a cure for the swollen pancreas, or chronic pancreatitis, and is backed up by a study of end-results. It is, no doubt, generally effective in cases where there are no stones in the common duct, or jaundice from the swelling of the head of the pancreas, which, as you know, sometimes surrounds the terminal portion of the common duct, blocks it, and causes distention of the gall-bladder. In this latter form of case one may need the gall-bladder to secure bile drainage by anastomosis with the stomach or duodenum. Without such drainage, neither the jaundice nor the infection has any chance of cure, and therefore the removal of the gall-bladder would be a very grave mistake. Even in malignant disease of the head of the pancreas blocking the common duct, with dilatation and jaundice (in accordance with Courvoisier's law), the anastomosis of the gall-bladder with either the duodenum or the stomach has been attended by astonishing improvement, disappearance of jaundice and gain in weight.

After drainage of the bile ducts by a cholecystenterostomy, I have several times seen a patient recover from a chronic pancreatitis, in one case after permanent bile drainage into the abdominal wall has been unsuccessful. Again, no gall-bladder should be removed for pancreatitis unless one is particularly sure there are no stones in the common duct. With a history of recurrent attacks with chills and slight jaundice, I should drain rather than remove the gall-bladder, in the presence of pancreatitis, because that history means common duct stone, and a secondary operation in the common duct, after the gall-bladder has been removed, is exceedingly difficult. And, sad to relate, one may sometimes fail to feel a small stone in the common duct, especially if it has been pushed up into the right or left hepatic duct by palpation. One cannot be too careful to eliminate stones in the common duct, and in cases of doubt it is better to open, probe and drain it. In early cases of gallstones, cholecystectomy is indicated, and in early cases of pancreatitis it will be effective according to the simple principle of curing the infection by the removal of the source. It is in the late and complicated cases that we have to consider the advantages of leaving the gall-bladder. Naturally in a given case of gall-bladder disease accompanying pancreatitis, the question of removing the gall-bladder is complicated by the considerations of the patient's condition, and the technical difficulty of the operation as affected by obesity, difficulty of getting at the ducts, adhesions and the many obstacles that the surgeon has to consider. Advocates of the reflex flow theory, or backing up in the ducts, in particular, Archibald, of Montreal, whom I have quoted above, believe in gall-bladder or duct drainage over long periods, for the cure of chronic pancreatitis. This should always be done when it is technically impossible or difficult, and therefore dangerous, to remove the gall-bladder, and may, as is well known, be successful.

One argument in favor of the direct dependence of pancreatitis upon infection extending from the gall-bladder, is the fact that localized abscesses of the head of the pancreas, with fat necrosis, have several times been found by the author in operating upon a gall-bladder, when

operation had been delayed for several days. In one case waiting for the attack to quiet down (Case 2) infection was shown to be present by a temperature. The complicating pancreatitis may have arisen while waiting for operation, at any rate the patient, during this period, grew worse. The possibility of the development of pancreatitis is therefore an argument for not waiting in an acute gall-bladder. Another argument is perforation, which occurred in one of my cases on the night before operation was planned. The development of these localized abscesses in the head of the pancreas close to the gall-bladder and common ducts, where the anastomosis of the lymphatics is most free, and in cases where there is no evidence of common duct stone, is an argument for the causation of pancreatitis by infection through the lymphatics.

About the anatomy of the pancreas, I must speak a few words, as its relations so complicate operations. It is shaped like a pistol, with the handle enclosed in the horseshoe curve of the duodenum, and the barrel pointing to the left across the abdomen, reaching as far as the hilus of the spleen, with the stomach and third portion of the duodenum in front of it, and the aorta, vena cava, superior mesenteric artery and vein grooving its posterior surface. The terminal portion of the common bile duct runs along its right-hand border, the splenic artery and vein from which it receives its numerous branches, along its superior border, and the gastro-duodenal branch of the hepatic artery and the superior pancreatico-duodenal anastomose around its head. Its structure is that of a racemose gland divided into lobules and the lobules in turn into the finer acini, like a salivary gland. In fact, the Germans called it the "*Bauchspeicheldrüse*," or abdominal salivary gland.

It develops from two anlage close to each other in the mesentery, the tail from a dorsal bud and the head from a ventral or two ventral buds. The head is a good deal thicker and heavier than the tail and, strange to say, in the majority of cases, the long duct of the tail, which would naturally continue straight into the duodenum as the duct of Santorini, anastomoses so freely with the duct of Wirsung, the duct of the head, that this latter becomes, in most cases, the main duct of the pancreas. In such cases the duct of Santorini may be entirely or nearly obliterated. In this event, provided the anatomical arrangements at the opening of the duct of Wirsung in the papilla are favorable, we may get backing up, from the impaction of a stone in the common duct. If the anastomosis be not very free, the head of the pancreas alone would be affected by this regurgitation. A stone in the common duct, however, might so impinge on the duct of Wirsung by mere pressure as to block up the pancreatic secretion, without, however, any bile getting in. Would this produce pancreatitis, or do great harm? The evidence is that it might cause dilatation of the ducts, or even cysts, single or multiple, of the pancreas, but that it would probably not produce pancreatitis. Before going into the reason for this, we must briefly discuss the nature of the pancreatic secretion.

This contains amylolytic ferment for digestion of starches, and steapsin for digestion of fat, and trypsin for digestion of proteids. But neither of these two latter substances is produced in and occurs in the pancreatic fluid, but exists in the form of steapsinogen and trypsinogen, respectively, which are converted into steapsin and trypsin in the intestinal canal, the former by some constituent of the bile, and the latter by a substance called enterokinase, which exists in the small intestine. If these active ferments existed in the pancreas, probably under normal conditions, at any rate, after blocking of the ducts, self-digestion of the pancreas would occur. Not only does this not take place, but if, in animals, the duct of the pancreas be divided close behind its outlet, and allowed to pour its contents into the abdominal cavity, no digestion occurs. On the contrary, the animal may live a long time in excellent health and at autopsy show no damage to the peritoneum. But — and here is the important point — the presence of dead tissue will activate these ferments so that the steapsinogen and trypsinogen are changed into steapsin and trypsin, when at once self-digestion begins, the blood vessels are eaten away, resulting in hemorrhage, the fatty tissue is split into fatty acids and glycerin, producing the fat necrosis which is so characteristic of pancreatitis.

Therefore any infection coming by the blood vessels or lymphatics which is sufficient to cause a local necrosis, will set up this self-digestion and produce a pancreatitis. A most interesting fact in this connection is that, in spite of the fact that an animal may continue well for a long time with pancreatic secretion pouring into its peritoneal cavity, if an entire pancreas be removed from a dog under aseptic conditions, and dropped into the abdomen of a healthy dog, that dog will die within twenty-four hours, and autopsy will show the peritoneum to contain the dirty fluid so characteristic of pancreatitis. The implanted pancreas will be softened, dirty, yellow and disintegrated, from the effects of self-digestion by the secretion, activated by the dead tissue. The acute pancreatitis poisoning in these cases is the reason for the overwhelming onset in hemorrhagic pancreatitis in man, and for the necessity for immediate operation.

Some of the patients are so thoroughly toxic at the beginning of the attack that it has been considered good practice to let them alone, and if they have the good luck to survive a few days so that the process is walled off, to op-

erate for drainage. This is a question to be decided by the surgeon in each individual case, but with the resources of salt infusion and blood transfusion at our disposal, I believe we shall oftener operate in the acute stage, and, possibly, save some of the more desperate cases. The operation of epigastric incision, scoring of the peritoneum over the pancreas, and packing with gauze, is not very serious or attended by shock, and may drain enough of the infected toxic secretion to turn the balance in the patient's favor.

In reference to the activation of the pancreatic fluid by dead tissue, it is well known to pathologists that self-digestion and softening of the pancreas begin immediately after death, and that in a delayed autopsy the pancreas may be so changed as to render it difficult to decide upon the ante-mortem condition.

The results of irregularities in the anatomy of the pancreas.

In discussion of the anatomy and embryology of the pancreas, the statement was made that there were many irregularities of the anastomosis of the ducts. It should be further added that there are many irregularities in the shape and relations, especially of the head of the pancreas. Not at all infrequently the entire course of the common duct below the lower border of the duodenum is surrounded by the actual substance of the pancreas. In these cases a moderate swelling, which will not obstruct the duct under the ordinary conditions, will be productive of jaundice. A few cases are on record in which the head of the pancreas has actually surrounded and compressed the duodenum, producing an obstruction which may have to be relieved by a gastro-enterostomy. From the third anlage of the pancreas, an accessory pancreas sometimes develops in the wall of the duodenum, or even of the stomach, and these nodules, usually small, may become the seat of pathological processes.

A word ought to be said about the differential diagnosis between chronic pancreatitis and carcinoma of the pancreas. As except in rare instances with small and localized growths, carcinomata of the pancreas cannot be removed without causing death, and in a few of the cases in which the patient has survived the operation, death has occurred within a few months; in case of doubt, no attempt at removal should be made.

Carcinoma of the pancreas has the stony hardness of carcinoma elsewhere, but chronic pancreatitis, also, is just as hard, so that the differential diagnosis may be as difficult as it is well known to be in the case of cancer and ulcer of the stomach. Carcinoma is, of course, localized at first, is more irregular than the diffuse swelling of pancreatitis, and there may be a sharp line where the cancer leaves off and the normal pancreas begins. On the other hand, a chronic pancreatitis may be localized, in fact, it will be found (and Deaver and Sweet have called attention to the fact) that in the majority of the cases it is localized in the head of the organ (42 out of 52 cases). The part of the pancreas that is inflamed has been called the "triangle of inflammation," lying between the ducts of Santorini and Wirsung and the curve of the duodenum. This localization is in favor of the theory that disease arises by continuity through the lymphatics from an infection of the gall-bladder and bile ducts, and is against its origin from the blocking of the ducts. In the later stages of carcinoma, obstruction of the common duct, jaundice and metastases to liver and lymph glands will make the diagnosis clear. In certain even of these advanced cases, if jaundice be present, great relief may be given by cholecystenterostomy, and if the obstruction is confined to that portion of the common duct below the cystic, this should always be done. In chronic pancreatitis, with jaundice and dilated gall-bladder, in my belief, it should also be done.

I wish to quote one or two cases which illustrate certain points in this paper.

Case 1. Carcinoma of the Pancreas. R. G., 28 years of age. He served in the Navy during the war, was well until May, 1920, except for occasional sore throat. In May, 1920, noticed gnawing pains in the pit of his stomach about two hours before meals. Relieved by eating. After about two weeks, he had chilly sensations and took to bed, where he remained four weeks, with occasional fever and jaundice. He lost 27 pounds in weight between May, 1920, and March 1, 1921. His skin itched. There was enough pruritus to keep him awake. About the middle of last July, jaundice suddenly cleared. But he had another attack like the first, in November. He was in ill health with more or less recurrent jaundice, for about a year, and on May 7, 1921, I felt a very large tumor in the right side. As showing the difficulty of diagnosis, a G.-U. surgeon said it was a malignant tumor of the kidney causing pressure on the common duct. On the seventh of May, this year, I operated and found the tumor was an enormously distended, thickened gall-bladder. No stones were felt. Further investigation showed head of pancreas large and hard, slightly larger than a hen's egg. No other abnormalities were found. The tail of the pancreas was normal. A cholecystenterostomy was done with a double row of sutures. The result was that the jaundice quickly cleared up and the patient improved and went home. He returned to me in August, complaining still of epigastric pain, loss of weight, and indigestion. The jaundice had entirely disappeared. I sent him to the hospital again. X-ray showed slight obstruction to the flow of bismuth out of the stomach. Nothing else ab-

normal. The tumor could not be felt to have increased in size. After observation on the medical side, I decided to re-operate and, possibly, do a gastroenterostomy. The operation was done on the eighth of September. The head of the pancreas I found to have grown and extended considerably, until it was almost against the lateral ribs at the right. The tail of the pancreas was normal. There was no blocking of the bile ducts, but distinct, large, hard, round nodules in the liver proved that we had to deal with a case of cancer and not localized pancreatitis. This case is taken to illustrate the difficulties of diagnosis between cancer and pancreatitis.

I find that I have performed the operation of cholecysenterostomy eight times, with one death. I have not been able to follow all the cases to find out if they were chronic pancreatitis or cancer, but most of them have finally turned out to be cancer. However, the relief given has amply justified operation, as can be seen from this typical history. On looking over my histories of acute and chronic pancreatitis, I find one case of undoubted subacute pancreatitis in which I intended to do a cholecystenterostomy but was obliged to retire on account of the poor condition of the patient. This patient made a good recovery. I have no doubt that certain cases of subacute pancreatitis, where too much of the pancreas is not involved, and even in the presence of fat necrosis, recovery may occasionally occur. I find in my records 39 cases of acute and chronic pancreatitis and cancer of the pancreas. I have fifteen cases of acute pancreatitis, in six of which gallstones were found also. Of chronic pancreatitis there were nine cases, in only one of which showed gallstones. To this should be added a very large number of cases which were classified in my list as gallstones, but in which I found a moderate enlargement of the pancreas. I have not searched through the record of my gallstone cases to pick these out, so I do not know how many of these there were. Of cancer of the pancreas, I have had 13 cases, four of which had gallstones. There were two cases of pancreatic cyst.

CASE 2. This is a case of gallstones with acute pancreatitis and localized abscess. E. M., 29 years of age, married, one daughter 5½ years of age. Three months ago, had an attack of acute pain in the epigastrium, recently had had a second attack. States that she never was jaundiced. She showed slight elevation of pulse, and complained of pain in the epigastrium. Marked pain and tenderness in the upper right quadrant. I thought there was a slight jaundice. Diagnosis of gallstones was naturally made. I found the gall-bladder thickened and containing a large number of small mulberry stones, but just below it could be felt an indurated swelling which proved to be the swollen head of the pancreas, and the peritoneum over it was distinctly red from dilated blood vessels, and the swollen area was studded with spots of fat necrosis. The great omentum was inflamed along the border, which rested along the pancreas. The stones were removed and the head of the pancreas split. I found a localized abscess. A small amount of grumous material was expelled. A cigarette drain was carried into the abscess and the gall-bladder was drained by the usual long rubber tube. She made an uneventful recovery. This illustrated localized pancreatitis coming on during gallstone attack.

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WHAT MAY BE EXPECTED FROM SANATORIUM TREATMENT?*

BY VINCENT Y. BOWDITCH, M.D., BOSTON,

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IN attempting to present to you my views upon the place which sanatorium treatment of tuberculosis holds, or should hold, in the minds of those who have had the greatest experience in this direction, it would seem best to review the whole situation covering a period of more than a quarter of a century. To some of you this may be more than a twice-told tale, but for those who have more recently entered the profession, since the interest in the subject has taken so great a hold upon the public, it is well to compare conditions of more than a generation ago with those of the present time.

In former years, comparatively little attempt was made by the profession to treat the patient afflicted with tuberculosis (or, as it was called in the earlier times, generally, "consumption") in any other way than by the use

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of drugs in one form or another, or by methods often savoring of quackery, always or usually with a sense of hopelessness as to a possible favorable outcome for the poor sufferer. Exile to supposedly more favorable climates was resorted to in isolated cases, but the majority, for one reason or another, were doomed to stay at home, with no serious attempt on the part of the physician to do other than make the patient's remaining life as comfortable as possible under the distressing circumstances. Contrast those times of desperate hopelessness with the present, when we can hold out infinitely more than a ray of hope to patients who come to us with symptoms of the malady which still decimates our population in spite of an encouraging decrease in the death rate of late years. Now we know that when the disease is met with in its early stages, and more exceptionally when it is fairly advanced, many patients can be restored to a life, at least, of comparative health and usefulness; and, as proven by experience, many can be completely restored who, had they been ignorant of modern methods of treatment, would have succumbed to the disease.

Even our medical schools are awaking to the fact that there is a great field for investigation in this special line of work, and among the younger members of the profession there seems to be a growing desire to devote themselves to this branch of medicine—a marked contrast to the former more hopeless attitude of medical men, that tuberculosis was simply one of the diseases that could be ministered to only as occasion required by the general practitioner, without the need of special observation. Surely the great need that there is of practising and disseminating the knowledge of the modern methods of dealing with the disease and of making scientific investigations for the purpose of controlling it, should be a stimulus to the younger men to work in this field.

It will be well now to review briefly the history of the growth of sanatoria during the past fifty or sixty years, both abroad and in the United States. As is almost universally known, Hermann Brehmer may be considered as the father of sanatorium treatment of tuberculous patients, although one or two feeble efforts had been made in other countries previous to his work in Goerbersdorf in the mountains of Silesia in the latter fifties of the past century. Dettweiler, his pupil, followed in his footsteps not many years after, at Falkenstein, near Frankfort, in Germany; and much later innumerable institutions of similar character sprang up in Germany and elsewhere, all of them serving to prove the folly and wrong of the opposition to Brehmer, shown not only by the laity but by our own profession, who regarded him as an enthusiast, a dreamer, and even worse, until, after the passage of years, his results had shown them their mistake.

To the great and noble Edward L. Trudeau belongs the credit of being the first to bring before the profession and the public generally, in America, what could be done by sanatorium treatment in the Adirondack Mountains. With one or two buildings as a nucleus, in the early eighties, the Adirondack Cottage Sanatorium was begun. The great institution at Saranac Lake now stands as a lasting memorial to the genius and devotion of that remarkable man. As with Brehmer, Trudeau's work had been preceded by one or two small examples in the southern portion of the United States, but these had failed to make the impression upon the public that followed his efforts. To his unremitting care is largely due the return to health of thousands of sufferers from tuberculosis who have outlived him.

Up to thirty years ago, very little attention had been paid to the effort to cure patients near or in their homes, and the attempt to do anything of that nature had been regarded by many as somewhat chimerical and almost impossible of achievement. From the experience and teaching of my father as to the importance of fresh air in our dwellings, of the constant reiteration of the necessity of doing away with air-tight stoves (those enemies of good ventilation) in the sickroom and elsewhere, the value of sunlight in the home, necessitating often the cutting of trees that gave too much shade to the house, I received the first impulse to establish, as an experiment, some place for the possible cure of tuberculous patients who, for whatever reason, pecuniary or otherwise, were unable to go to distant resorts far from home. An appeal to philanthropic people in and about Boston, a little more than thirty years ago, resulted in the establishment of a new and small building, simply built, for the purpose of obtaining as much air and sunshine as possible, in the town of Sharon, eighteen miles from Boston, only ten miles from the sea, and at an altitude of about 250 feet only above sea-level,—these latter features having been thought at that time, by most of the medical profession and the laity, as distinct obstacles to the success of such a plan This is not the place to dilate upon the misgivings and fears of failure that beset those who were most interested in this venture. The experiment was begun and the sanatorium first opened its doors in February, 1891, thirty years ago, in a building intended for eight patients. This was six years after Trudeau had founded his sanatorium at Saranac Lake in the mountains. It was his ardent help and advice that gave courage to the workers at Sharon. Slowly but surely the results of the treatment there were shown to be similar to those attained in places which possessed conditions of climate, altitude, etc., hitherto regarded

as essential to the cure of tuberculosis. At the end of five years, sufficient proof had been given of the success of the plan to warrant placing the facts before the public, and to ask for further aid in the philanthropy.

During this time of growing conviction that more could be done near at home than had been thought possible before, Dr. Alfred Worcester, of Waltham, in connection with whom I always like to emphasize what the public owes him, became deeply interested in the work at Sharon and was one of the first to acknowledge the truth of what had been claimed. A few years after the opening of the Sharon Sanatorium, a movement was made in the Massachusetts Legislature by the late Dr. Gallivan, who keenly felt the need of care for poor consumptives, for the establishment of a "consumptives' home" in our state; not with the idea of possible cure, but simply as a shelter to sufferers who could not obtain care at home. A Board of Trustees was appointed, of which Dr. Worcester was a member. Keenly interested in the idea of making the new institution a sanatorium on the plan of that at Sharon, and not a hospital for advanced cases, Dr. Worcester persuaded the trustees to change the original plan and, as stated in their preliminary report, because of the success of the work at Sharon, it was decided to change the purpose of the new institution and devote it to the cure of hopeful early cases of tuberculosis. In October, 1898, therefore, seven years after the opening of the Sharon Sanatorium, the first *State* sanatorium in the United States was dedicated at Rutland, Mass. It was my privilege and pleasure to be one of the attending physicians for the first eight years of its existence. As is well known, other states were not long in following the example of Massachusetts, and the development of sanatoria increased with remarkable rapidity throughout the Union.

Incidentally, the work of Dr. Charles Millet of Brockton, Dr. Joseph H. Pratt and Dr. N. K. Wood, of Boston, should always be mentioned in connection with the home treatment of tuberculosis, which in the years immediately following the events just mentioned, had a great influence in convincing the public how much more could be done in these directions than had been thought possible before.

Subsequent events are well known to most, if not all of you: the rapid increase in number, not only of sanatoria in this state, but of numerous hospitals (both county and municipal) for the far-advanced cases, the establishment of dispensaries in towns and cities,—all show the vast difference that exists now in the public mind regarding the present endeavor to control this disease, and the attitude held by the majority a generation or more ago.

So much, in brief, for the history of the anti-tuberculosis movement in Massachusetts. Now to dwell upon the subject as to what position sanatorium treatment holds among other methods of combating the disease.

Just here it should be made very plain what the claims were of those who first called attention to the fact that many people could overcome the disease under proper conditions, even in climates that had been generally considered most unfavorable for any such attempt. *No claim was ever made by those who best understood the disease that by the establishment of sanatoria the panacea had been found for exterminating the disease.* It was simply believed that a step forward had been made in the endeavor to lessen the ravages of tuberculosis. Unfortunately, in the early history of the movement, through the extravagant claims of zealots who boasted of rapid cures, for which there was no justification, there came a time of disappointment and reaction in the public mind as to the efficacy of sanatorium treatment, simply because many patients, who had been classed wrongly as "cured," had relapsed under ordinary conditions of life. In consequence, a feeling that the whole movement was doomed to failure arose in some ignorant minds, an opinion as absurd as the previous one had been ill-judged and false. Time, however, rectified these extreme attitudes, and a more reasonable position was taken and held.

In a paper entitled "Subsequent Histories of Seventy-nine Arrested Cases Treated at the Sharon Sanatorium, 1891-1902," published in 1903, and in another by Dr. Walter A. Griffin and myself, giving the subsequent histories of 160 "arrested cases" during 1891-1906, published in 1908, we gave testimony as to the value of the methods pursued at Sharon. At present, at the end of the thirtieth year since the opening of the sanatorium in 1891, we have been sending out a questionnaire to over a thousand former patients with the endeavor to formulate the results and to show in some measure what has been accomplished and how lasting these results have been. The great difficulty of tracing all patients will be recognized, but already sufficient data have been gathered to make what we believe will finally be a valuable addition to our knowledge. In all statistical investigations, however, there is usually lacking an element that is vital to those who are connected with the work —the personal one. No amount of statistical proof for or against the value of sanatorium treatment could now deprive me of the consciousness of the great value that the establishment of sanatoria has been in the anti-tuberculosis work. Regardless of failure in many cases, the personal knowledge not only of the many who have had a renewal of health but of the educational effect of such establishments upon the community, is more convincing to myself than any array of statistical tables could possibly be; and it is my firm opinion that every

dollar spent for the support of *properly regulated* sanatoria has been more than repaid by what they do to promote the health and welfare of our communities, not only in restoring people to health but as a large factor in the field of preventive medicine. That is, we teach people how to guard against disease by proper methods of living. I could quote many letters from patients, some of whom left the sanatorium more than twenty-five years ago, all of whom bear testimony to what I have just stated; women who were seriously affected who have regained their health and are now well, and many of them mothers of strong, healthy children.

In our second paper, just referred to, giving the results in the years between 1891 and 1906, and published in 1908, we mentioned the fact that the total number of "arrested cases" discharged was 160. This was when our capacity was (for the first ten years) only eight beds; after that date, the number was almost trebled. The term "arrested," moreover, was what, at that time, we applied only to cases which had ceased to have abnormal symptoms and had the appearance of good health upon discharge; the term "cured," or "apparently cured," even, having never been used at that time, in any case upon discharge, as being the more conservative method of recording results. Subsequent methods used in recording results are those recommended by the American Sanatorium Association and the National Tuberculosis Association.

From the year 1891 to 1906, and reported in 1908:

Total number "arrested," 160.

Number who were still living and well in 1908, most of them housekeepers or wage-earners, 133 = 83+ per cent.

Number who had not recently been heard of, but who at last accounts were doing well, many of them in robust health, 6 = 3.7 per cent.

Number who had relapsed and died, 21 = 13+ per cent.

All of them were evidently of tubercular nature, as proved either by the presence of bacilli in the sputa, the tuberculin test, or such marked signs in the chest, combined with the history, as to make the diagnosis undoubted. Incidentally, it should be stated that merely "suspected cases" of tuberculosis were not included in these investigations. It should also be added that several cases were given the tuberculin test simply as a matter of corroboration of a previous diagnosis and as an additional means of convincing others who might be skeptical.

Although we have not yet proceeded far enough in our present investigation to be able to say whether the favorable results obtained in the cases just mentioned have persisted up to the present or not, thus far we have had no reason to doubt the correctness of former conclusions, and we may certainly hope to find only a stronger corroboration than ever before of our earlier belief.

Another feature of sanatorium work at Sharon has been developed in the past two years in the form of an open-air school combined with sanatorium life in the so-called Children's Pavilion, or Preventorium. There is a growing tendency to feel that special attention to the children is a very important part of the anti-tuberculosis movement, and one, the importance of which should be brought strongly before the medical profession. My personal experience makes me all the more eager to urge the profession to keep this in mind in their practice. Having watched the wonderfully beneficial effect upon young children of this mode of life at Sharon, and with the favorable testimony given us by members of the profession who have sent patients to us, I can speak with more assurance than formerly. For some reason which I am not yet quite able to explain, there has not been, thus far, the response to this movement that I had hoped and looked for, and although we have had repeated instances of the efficiency of what is done for delicate children there, the number of those who have applied is still comparatively small. And yet in one of the state sanatoria, and in one municipal sanatorium devoted to the care of very poor children, there seems to be no such difficulty in filling the beds to the utmost capacity. One reason which seems a possible explanation of this is the fact that we try to minister to people of moderate means who cannot afford expensive treatment, but who are of a class who are fearful as to what sort of association their children, at a receptive age, may encounter, and so shrink from letting their children leave the privacy of home and enter what they feel to be the uncertainties of institution life. If such be the case, I can only wish that such doubters would visit the Preventorium at Sharon, or hear the testimony of parents who have already availed themselves of the privileges there. I believe all fears in such directions would vanish, for the atmosphere of the place is one of health, cheer and refinement, which can only militate to the physical and moral well-being of the child. I cannot urge upon the profession too strongly the necessity of convincing themselves upon these points, by placing weakly, especially tuberculous, children under the mild discipline and hygienic conditions of sanatorium life, such as can be had at Sharon, where, for a moderate sum, the opportunity is offered of bringing health and happiness in adult life to many a sufferer.

Although I am supposed to confine myself to the subject of what may be expected from sanatorium treatment and of what degree of value it holds in the anti-tuberculosis campaign, it would hardly be possible for me to leave the subject without referring to the great importance of the after-care of the discharged

tuberculous patient as an adjunct to what has already been done for him. I regard this as one of the most important features of the campaign against the disease, and it will require increased effort on the part of those interested to further all measures which look to the prevention of relapses caused by a return to the same unhygienic conditions which, in most cases, existed before the appearance of the disease. Nothing has been more discouraging to the social worker or to the physician, to say nothing of the laity, than the comparative frequency of relapse among patients after discharge. In the past decade, much more attention has been paid to this subject, especially in England, and in very recent times the endeavor to establish farm colonies, or other methods of keeping patients in favorable surroundings while engaged in some healthful occupation, brings still greater hope of final success in controlling the disease. In our country, one of the most striking examples of what can be done for the arrested cases of tuberculosis is the Farm Colony and Vocational Workshop for ex-service men and civilians, which is meeting with such marked success at Rutland, Massachusetts, under the guidance of Dr. B. T. Crane.

As a final answer to the question contained in the title of my paper, you will doubtless understand from what I have said, without further explanation on my part, what my belief is about the efficacy of sanatorium treatment in a properly regulated institution. It has never been supposed that it would be a *panacea*, but from thirty years' experience, I am firmly convinced that it is one of the vital factors in the whole field of our efforts to eradicate this disease; an adjunct to every other possible means that we can furnish for its cure and prevention. I believe that this opinion is now shared by everyone who has had experience in this special direction. Unless some long-hoped-for, specific cure should suddenly appear, we shall doubtless have years before us of necessarily unremitting effort along lines now well established, but my faith has never been shaken that finally the goal will be reached and tuberculosis will no longer be the scourge to humanity that it has been from time immemorial.

TWO DIFFERENT VIEWS OF STAMMERING

By Ernest Tompkins, M.E., Pasadena, Calif.

The *Journal of the American Medical Association* recently endorsed the amnesia view of stammering in the following words: "The theory of Bluemel that stammering is caused by transient auditory amnesia in the auditory speech centers brought on by cerebral congestion has at length found substantiation in the results of direct observation on man."[1]

Let us consider this theory. We will be helped in the consideration by use of the speech-interference theory, which incidentally has frequently been called to the attention of the *Journal of the American Medical Association* but has failed to receive endorsement or even notice.

The Bluemel theory in plain language is this:

(1) The stammerer has a mental defect.
(2) He experiences fright.
(3) The fright causes cerebral congestion.
(4) The congestion, acting on the defect, causes stammering.

The speech-interference theory is this:

(1) The stammerer fears speech difficulty.
(2) He makes panicky, conscious efforts to speak.
(3) The conscious efforts obstruct his normal speech.

Comparison of the two theories show fright or fear in both, so they are in agreement in that regard. The panicky, conscious efforts are admitted. ("... the stammerer sees in the consonant the apparent cause of his difficulty, and resorts to violence to overcome it. He presses the lips together, tightens the muscles of the throat, clenches the fists, and may work even his arms and legs in an effort to *articulate*. But, since articulation itself causes no difficulty, his efforts are entirely misdirected." Bluemel. Stammering and Cognate Defects of Speech. Vol. 1, p. 264.) As to cerebral congestion, we will accept Shepard's finding,[2] "... all agreeable or disagreeable stimuli ... gave a rise of volume of the brain." The champions of the Bluemel theory can not object to this, because Robbins, the latest champion, and the one on whose work the *Journal of the American Medical Association* endorses the amnesia theory, says, "... the work done by Shepard is absolutely trustworthy."[3] Note that this acceptance of Shepard's finding is not admission of cerebral congestion. Congestion means excessive or abnormal accumulation of blood in a part (American Illustrated Medical Dictionary, Tenth Edition).

The disagreement of the theories is in respect to the mental defect and the abnormal accumulation of blood. In short, the amnesia theory introduces into the chain of events a mental defect and cerebral congestion as intermediaries between the fright and the stammering; whereas the speech-interference theory has no intermediaries between the fright and the admitted panicky efforts. Let Bluemel himself state the details of his theory: "Ball records a case that shows clearly the effect of auditory amnesia... He said, 'The words I can't pronounce are the words I can't hear.' The patient was unable to understand particular words because the auditory cells subserving

them were impaired. ... This phenomenon precisely illustrates the amnesic condition that occasions stammering."[4] It should be stated in this connection that neither Bluemel nor Robbins demonstrated—or even attempted to demonstrate—impaired cells in the stammerer; nor has anyone demonstrated them. So the tenability of the allegation rests on the completeness with which the theory embraces the facts on which it is based. Let us test the satisfactoriness of the two theories.

ORIGIN BY IMITATION AND ASSOCIATION.

Fletcher concluded that half of the stammering arises from these causes;[5] so this is a crucial test. According to the speech-interference theory, the child imitates stammering by conscious interference with its speech. It obstructs its speech just as the stammerer does. Then it fears it will catch the affliction, and makes the panicky efforts to talk, not realizing that it is still obstructing its speech, though now under the influence of fright instead of pleasure. The contortions cause hilarity and the child, fearing further humiliation continues the efforts, which in turn augment the fright. Contraction of the disorder by association is substantially the same, with the exception that the imitation is unintentional. Notice the reasonableness and simplicity of this description according to the speech-interference theory. Indeed, the process of contraction is interference with speech. What does the Bluemel theory say on the subject? Its author speaks for it. He says, "The two causes of stammering that do not produce aphasia are imitation and association."[6] It ought to be evident to anyone that the imitation of a dialect will not impair brain cells. It was evident to the author of the amnesia theory; and he admitted this failure of his theory for approximately half the field to which it is alleged to apply. It is a general mistake to think that Bluemel supports only what is called the Bluemel theory of stammering. That is the one which is prominently advanced in his two volume book. For the circumstances to which he found that theory did not apply he advanced other theories, among them "Hysteria,"[7] "Distortion of Verbal Imagery,"[8] "Psychic Causes" habit would be the simplest word),[9] "Auto-intoxication,"[10] "Bewilderment,"[11] Auto-suggestion,"[12] "Fear,"[13] "Physical Effort."[14] These are in fact admission of the fallacy of the theory which generally bears his name.

ORIGIN OTHER THAN BY ASSOCIATION AND IMITATION.

Stammering sometimes arises subsequent to an attack of aphasia, and this infrequent origin is used as a main support of the amnesia theory, amnesia of course being a form of aphasia. Not only is the aphasia represented as continuing as auditory amnesia, but all causes—other than imitation and association—are represented as inducing amnesia. The whooping cough is represented as impairing the auditory cells; the measles, the scarlet fever, the convulsion, the fainting spell are all represented as impairing the auditory cells. Let us consider this, taking first the origin by aphasia, which is the strongest. What are the facts? Bluemel himself gives an instance. A cavalryman was kicked in the head by his horse and suffered in consequence from an attack of aphasia, *which developed into stammering*, an entirely different affection. Does the reader desire authority for the statement that the disorders are different? We will grant his desire. Of all the American authority that I can quote, none is more reliable than John Madison Fletcher. His Experimental Study of Stuttering[15]—he means stammering—is a gem, among a dreary monotony of clods. He finds stammering so different from aphasia that they are not to be considered together. He says, "There is a class of speech defects resulting from diseases or lesions in those portions of the brain that have to do with the function of speech. This type of defects is known as aphasia .... It will not be taken into account in the present study." This Experimental Study appeared subsequent to Bluemel's book; so, if there had been any value in Bluemel's theory Fletcher would probably have considered it. In short, the allegation that stammering is amnesia because it sometimes originates subsequent to an attack of aphasia, is not sustained by the facts. Still less is it likely that the frights, sicknesses, burns and so on, which are frequent causes of stammering, impair the brain cells so that stammering results. Indeed, in some cases we know that such is not the case. For instance Fletcher tells of a man whose utterance of the word "preliminary" was interfered with by a dental harness he was wearing, who was embarrassed by the incident, and has since stammered on that word. Who believes that the tripping of the tongue by a dental harness would impair brain cells? Fletcher gives another case that negatives the Bluemel theory. He says, "One of the subjects, W. N., acquired a persistent tendency to stutter in pronouncing a particular word in consequence of one unsuccessful attempt to give a number while going through his regular test in counting from one to twenty."[17] Here was not even a dental harness to trip the tongue. Who believes that the subject's brain cells were impaired?

What does the speech-interference theory say on the subject? It says that any temporary interruption to newly acquired speech is an inducing cause of stammering; and that the original cause does not persist except in the cases of association and imitation. The fall, the exhaustion, the false face, the sickness, the convulsion bring about a temporary speech dis-

ability which prompts the conscious effort. The effort is "misdirected", as Bluemel says, and only makes the trouble worse. Someone laughs and humiliates the sufferer. The next time he speaks he redoubles his efforts in order to avoid further ridicule; and so he continues his efforts, not realizing that he is making his own trouble. Each trouble impresses itself on his memory, strengthening his mistaken impression of speech disability until it haunts him day and night. Does the speech-interference theory account for the special cases? Yes. The dental harness afforded a temporary speech interruption, prompting a conscious speech effort, the failure of which instilled the doubt of speech ability on that particular word. The doubt prompted further effort, the failure of which strengthened the doubt. Indeed, the speech-interference theory supplies the long-sought-for common causal factor. It harmonizes all the variant causes of stammering, causes so variant that they used to mystify the investigators. Fletcher himself said, "Just how being bitten by a dog can produce stuttering in the same fashion in which habits are acquired is not easy to see."[18] But when one understands the speech-interference theory not only this mystery, but all stammering mysteries are made perfectly clear. When the child is bitten by the dog—and he need not be bitten to become afflicted with stammering, for fear of a harmless dog will have the same effect—the child becomes speechless with fright. He then makes the conscious speech efforts in order to express himself. The efforts are abortive and bring ridicule or reproof. Fearing repetition of the embarrassment, he continues the efforts. The process of contraction of stammering by imitation has already been described, and the similarity of the two processes is evident to any open-minded person.

Summing up the applicability of the two theories to the origins of stammering, the speech-interference theory is fully in accord with all the facts. The Bluemel theory is admittedly a failure for approximately half of the cases, and evidently a failure for all the rest.

THE AGE OF ACQUISITION OF STAMMERING.

When does aphasia most appear? It most appears when other cell impairment does—near or at the age of senility. Does stammering appear then? No. It appears at the other end of life, generally between the ages of 3 and 7. The Bluemel theory is totally out of accord with the age of incidence. How about the speech-interference theory? Is it necessary to ask? Has it not already been shown that the speech-interference theory never fails? But the answer will be given. Speech is an acquired faculty. The child learns it by repeated trials, by conscious efforts. As the result of these trials it comes to talk normally, which is automatically. No attention is required. It merely wills to speak and speech comes, without effort and without knowledge of how it comes. The time for conscious speech efforts has passed, especially if they are prompted by fright. So in those cases in which an accident or incident induces the child to revert to conscious speech efforts the normal speech is more readily upset in proportion to the newness of its acquisition. In adult life, when normal speech is firmly fixed, the inducing cause must be severe to bring about stammering; and in advanced life almost nothing can overcome the thoroughly fixed normal speech.

ABSENCE OF STAMMERING IN SINGING.

Bear in mind that stammering according to Bluemel is failure to recall the auditory image. (He never has satisfactorily accounted for the stammerer's struggles; his account being that the stammerer struggles because of the failure to recall the sound which he desires to enunciate. But if that were the case then every amnesic would struggle and there would be no more amnesics but all stammerers.) He says, "in singing and whistling the auditory image determines almost exclusively the nature of the production,"[19] in which case, if the amnesia theory were valid, the stammerer would be practically unable to sing or whistle. Is that the case? No; the reverse is the case. One of my friends who was a severe stammerer, and much of a wag, as stammerers frequently are in their periods of elation, was asked if he could whistle. He replied, "I can stammer and whistle with equal facility." Incidently he was also an accomplished singer. The theory of Bluemel is not only out of accord with the facts but it denies the facts. The speech-interference theory clarifies the question. Whistling is not speech, so it is outside the scope of stammering. And speech is only one of several features of singing, which involves also measure, continuity of sound, accented vowel, all of which are deterrents of the conscious speech effort. The measure has a distractive effect: the stammerer, thinking of the measure, forgets his idea of speech disability, fails to make the impeding effort, and is fluent. The continuity reduces the stammering because it reduces the beginnings, with which stammerers generally have trouble. Accented vowel is equivalent to slighted consonant; that is, speech in singing is simplified or made elementary, so the incentive to interference is reduced. For instance, the first letter of my name, "T," was a bug-bear to me. But the letter "E" I regarded as easy. In singing, "T" became almost exclusively "E," the difficult transformed to the easy. So I did not fear the letter "T" in singing. Moreover, singing—particularly in the learning—is generally in concert, and stammering is absent in concert vocalization; so the fear of stammer-

ing would be allayed during the learning of singing, and no conscious misdirected efforts would be made even in solo singing. However, a case of stammering may be developed (as by attendance at the stammering schools which use articulatory and respiratory exercises) so that it will show even in singing. A series of violent speech difficulties may so accentuate the stammer's speech doubt that he will extend his impeding efforts even to the singing, contrary to all his experience. But it is generally true that stammering is absent in singing.

THE STAMMERER'S HEARING.

According to the speech-interference theory hearing is not involved; but according to the Bluemel theory the stammerer would be unable to understand the words which he could not pronounce. That is, his hearing would be subnormal. How shall we decide which theory is right? How better could we decide than by voluminous records by a medical speech specialist—one who stood as high as any in America, Dr. G. Hudson Makuen. In his Study of One Thousand Cases of Stammering he says, "Only about 3 per cent. had subnormal hearing, and this seemed to be purely accidental and in no respect related to the affection." (p. 12) Of all the evidence of unscientific procedure in the field of stammering there is probably none greater than the persistent attempts to maintain the amnesia theory in the face of this insuperable bar to it. Dr. Makuen was years in making his observations; they numbered a thousand. At the time of making his report he was an ardent supporter of the amnesia theory. If the theory were true, the stammerer's audition would be subnormal. But Dr. Makuen's observations extending over practically his whole professional career showed in the stammerers only 3 per cent. of subnormal hearing and that seemed not to be related to the stammering. This conflict of his observations with the theory was pointed out, and he soon after abandoned the theory. It was incumbent on Bluemel to do likewise or to disprove Dr. Makuen's observations. He could not do the latter and he did not do the former. But the field of stammering is anything but scientific. Although this one paragraph should by rights terminate the Bluemel theory, it is necessary to pile proof upon proof in order to carry conviction.

THE ALLEGED IMMUNITY OF THE WOMEN.

What does the Bluemel theory say about it. Its author says that the theory squares with the immunity of the women.

What does the speech-interference theory say about it? It says that the women are not immune.

This question may be settled largely by statistics. But statistics are so dreary that the reader is generally repelled by them. I have a mass of them before me, and if I gave even a brief résumé and the references, they would make an article in themselves. The gist of the ratio of female stammerers to male stammerers is this: for infancy some statistics and much observation to the effect that little girls contract stammering as much as little boys do; for average school age, girl stammerers to boy stammerers, 1 to 3; for adulthood, 1 to 9. The school statistics are from America, England and Germany and are singularly close. The adulthood figures are from such authorities as Chervin, Gutzmann, Columbat, Cöen, and are also in substantial agreement. These ratios show a marked decrease in the stammering among women from school age to adulthood—the girls themselves certainly do not disappear and the boys are beyond the age of contraction of stammering. This decrease evidently maintains from infancy, confirming the conclusion that the sex ratio is practically unity at that time. Moreover, there are abundant individual records of the overwhelmingly greater recovery of the girls. So the alleged immunity of the girls is really the recovery of most of them. But the Bluemel theory squares with immunity of the girls—it squares with what is not so. The speech-interference theory squares with the facts. The little girl stammerers get less ridicule, more correction and more opportunity for spontaneous talking, and so they recover as a rule.

We may pause and ask, could a theory be less in harmony with the facts on which it is based than is the Bluemel theory? It is a failure, either admitted or obvious, at every test. But mere failure is not its worst predicament. *Its champions prove it to be untrue.* By way of introduction it should be stated that the alleged experimental confirmation of the Bluemel theory amounted to this. A student at Harvard University experimented on stammerers and found peripheral vasoconstriction during stammering.[20] He prematurely announced confirmation of the Bluemel theory: he had not demonstrated cerebral congestion nor had he demonstrated impaired brain cells. He tried again[21] and advanced one step further, finding during stammering what he calls cerebral congestion and what Shepard calls increase of brain volume; but he says that his findings agree with those of Shepard, so we may properly use them as the basis of discussion. Now what are Shepard's findings? They are that the volume of the brain increases as the result of a mental stimulus—not only a fright stimulus but a pleasure stimulus—"all agreeable . . . or disagreeable stimuli" are Shepard's words. Now consider the stammerer's impediment, the chief characteristic of which is intermittence. At one time his utterance is badly trammeled; at another he is practically fluent. When his attention is directed to his speech he stammers, and when his attention is

distracted from it he is fluent. A hackneyed illustration is the preacher who is a stammerer in private conversation but an orator in the pulpit; but every stammerer exhibits the same characteristic, and the circumstance which generally determines for impediment or fluency is the mental stimulus—bad news brings stammering and good news brings fluency; a domestic squabble brings stammering and a picnic brings fluency. But this negatives the Bluemel theory, according to which every increase of brain volume, that is, every stimulus, would bring stammering.

But that is not the only disproof of the amnesia theory adduced by the work which is alleged to confirm it. In order to clarify a further disproof we may illuminate the question by means of the speech-interference theory Why is it that the stammering preacher is fluent all through a long discourse? Because his speech difficulty is out of mind—displaced by attention to what he is saying, not to how he is saying it. That is the explanation of the intermittence of stammering. In other words, when the stammerer forgets his difficulty he no longer makes it, and his speech flows unimpeded. Denhardt[22] relates how it fell to the lot of a young stammering officer to deliver the welcoming speech to the then Prinzen Wilhelm on the occasion of the Prince's visit to the officer's town. The speech was delivered fluently. The explanation is that the officer was so impressed by the necessity of avoiding a fiasco that his speech difficulty was banished from his mind, he did not make the impeding efforts and his address flowed uninterrupted. Note the reasonableness of this explanation according to the speech-interference theory. Now return to the unreasonableness of the Bluemel theory. According to Shepard, whose findings are accepted by both sides, any mental stimulus causes increase in brain volume; and according to the Bluemel theory this increase in brain volume would cause stammering. But the officer did not stammer, hence his brain did not increase in volume, therefore his mind was not operating during the delivery of the speech! The same would be true of the stammering preacher. He orates for two hours, and sinks exhausted, and mopping his perspiring brow, into his high-backed chair. But think not that he is exhausted, for according to the Bluemel theory his mind has not been operative. Otherwise he would have stammered all through his discourse. How much more argument is necessary—not argument, but sound reasoning—to show that the amnesia theory is not only unreasonable but absurd?

Stammering is probably the most anomalous disorder known. A certain degree of fright will make a stammerer almost dumb, whereas a greater degree will make him fluent; he struggles with a word which refuses to come, but ask him what word troubles him, and often he will say it fluently, actually saying the word which he thinks he cannot say; he dares not ask for a certain article in a store, yet if he writes on a piece of paper what he wants, *and keeps the paper in his pocket,* he is likely to ask for the article fluently. Page after page of such anomalies could be given—anomalies that no theory except the speech-interference theory has ever unmystified. But to give many of them and their explanations would unnecessarily lengthen this discussion. The slight fear brings to the stammerer's mind his unhappy state as a stammerer and he makes the efforts which make him a stammerer; whereas the increased fright makes him think of his personal safety instead of his speech difficulty and he becomes fluent. When the stammerer who is struggling with a recalcitrant word is asked what word bothers him; he thinks of the answer rather than his impediment, consequently neglecting to impede his speech, and says the word. When the stammerer has in his pocket a written memorandum of what he desires to purchase, he no longer fears to ask for the article, because he may without embarrassment produce the memorandum as though he needs it for reference. Thus satisfied of his speech security he feels no need of making an effort to talk, and failing to make the misdirected effort, he is fluent. All the other anomalies are explainable as readily and reasonably by the speech-interference theory.

The total failure of the Bluemel theory—for it is a total failure—should not be taken to apply to it alone. It applies to any theory which imputes a "failure" or a "lack" to the stammerer. The visual-asthenia theory, the enlarged thymus theory, the neurosis theory, the psychosis theory, the Freudian theory—any and all theories of the "lack" or "deficiency" class are as perfect failures as is the Bluemel theory. The stammerer's difficulty is not lack of anything—of healthy brain cells, of coördinating ability, of intelligence—it is a superfluity, namely the mistaken idea that his speech is defective. *But* that idea, mistaken as it is, is not illogical, for it is the result of experience. Therefore the affection can not be classed as a disease. From which it follows that stammering is a habit—a habit kept fastened on the race by the suppression of its true nature and by the dissemination of fallacious disease theories.

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THE BASAL METABOLISM IN MYELOGENOUS LEUKEMIA AND ITS RELATION TO THE BLOOD FINDINGS.

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A LARGE number of observations are already on record indicating that a high oxygen consumption is characteristic of chronic myelogenous leukemia, and suggesting that there is a general relation between the increase of metabolism and the degree of leucocytosis. The cases reported in the present paper were studied with the object of determining whether the relationship between metabolism and leucocytosis is constant and whether any other pathological features of the blood are associated with the changes in metabolism. The cases investigated were admirably adapted to study from this point of view, for they were under treatment with radium and showed rapid variations in the blood picture and in the oxygen consumption. Nineteen cases are reported and metabolism observations were made on them as follows:

6 cases, one determination
3 cases, two determinations
5 cases, three determinations
3 cases, four determinations
1 case, five determinations
1 case, eighteen determinations

For the sake of brevity all observations are not published in the accompanying table. The expired air was collected in a Tissot spirometer and analyzed with a Haldane portable apparatus. The metabolism was measured by the heat production in calories per hour, as calculated from the oxygen consumption, and respiratory quotient and expressed in calories per square meter of surface area per hour. The surface area of the patient was determined from the height and weight according to the chart of DuBois and DuBois. (DuBois and DuBois: *Arch. of Int. Med.*, 1916, XVII, 863.) Comparison was finally made with the normal standards of metabolism of Gephart and DuBois (Gephart and DuBois: *Arch. Int. Med.*, 1916, XVII, 902), and the metabolism of the patients is expressed in its percentage relationships to these standards.

At the same time that the basal metabolism was determined, an examination of the blood was made which included the erythrocyte count, hemoglobin estimation (Sahli method), total and differential leucocyte count, and study of the red cells and platelets.

Sixty-two observations of the basal metabolism were made on 19 cases of myelogenous leukemia, and every determination, regardless of the stage of the disease or the effect of the treatment, was above the normal. Only 13 determinations were 10 per cent. or less above normal, 11 of these being in one case, and only 31 determinations were 20 per cent. or less above normal. The usual finding of a high basal metabolism in myelogenous leukemia is thus confirmed in this series of cases. There is a general tendency for the highest figures for basal metabolism to be associated with the highest leucocytosis, and this is especially characteristic of cases which have not been treated or which have received no radium treatment for a considerable period of time. The increase of metabolism, however, does not vary with the degree of leucocytosis from case to case. Thus Case 19705 had a basal metabolism of 14 per cent. above normal and a white count of 238,800 per cu. mm., while Case 20277 had a metabolism of 43 per cent. above normal and a white count of 290,000 per cu. mm. There are other exceptions to the general association of high metabolism with high leucocytosis, however, which are of even more interest. Case 18143 had a metabolism which was 57 per cent. above normal when the leucocyte count was only 4,000 per cu. mm.; Case 17172 had a metabolism of 72 per cent above normal when the leucocyte count was 76,000 per cu mm., and Case 2077 had a metabolism 28 per cent. above normal, with a leucocyte count of 8,000 per cu. mm. All of these three were patients in an advanced stage of this disease, and the striking feature of the blood picture in each of them was the presence of large numbers of immature leucocytes. The percentage of myeloblasts in the three instances cited was 58, 42 and 33, respectively.

A study of the whole series of results indicates clearly that the increase in basal metabolism bears at least as close a relation to the number of immature white cells in the blood as it does to the total leucocyte count.

As is usually true of advanced cases of myelogenous leukemia, the patients in whom a high basal metabolism was associated with a large percentage of immature leucocytes also had a considerable degree of anemia. Since it is well known that an increase of basal metabolism is often found in patients with severe anemia, the question arises as to whether the development of the anemia may account for the high

*This is paper No. 18 of a series of studies on the physiology and pathology of the blood from the Harvard Medical School and Allied Hospitals, a part of the expense of which has been defrayed from a grant from the Proctor Fund of the Harvard Medical School for the Study of Chronic Diseases.

CASE NO	DATE	AGE SEX	PULSE RATE	TEMP (F) BUCCAL	BASAL METABOLISM PER CENT OF NORMAL	HAEMOGLOBIN % SAHLI	RED CELLS PER CU. M.M. IN MILLIONS	WHITE CELLS PER CU. M.M. IN THOUSANDS	DIFFERENTIAL COUNT OF WHITE CELLS PER CENT OF. POLYNEUTROPHILE	EOSINOPHILES	BASOPHILES	LARGE MONONUCLEARS	LYMPHOCYTES	MYELOCYTES	MYELOBLASTS
20299	3-14-20	60 ♂	90	98.8	+31	43	2.39	9.74.0	56	0	1	0	0	41	2
	3-26-20		90	98.6	+34	40	2.40	2.35.0	56	0	4	3	4	30	3
	3-30-20		92	98.6	+29	55	2.40	200.0	53	1	3	4	3	33	3
	4-5-20		88	98.0	+25	68	2.40	133.0	59	1	4	3	6	25	2
	4-12-20		90	98.4	+19	77	3.30	97.0	65	1	3	3	3	25	0
	4-22-20		84	98.0	+12	75	3.60	20.0	75	1	9	3	0	11	1
	4-28-20		84	98.2	+9	75	3.70	10.0	80	0	7	0	6	7	0
	5-11-20		70	98.0	+10	80	3.90	11.0	81	1	6	0	6	6	0
	5-22-20		68	98.0	+8	80	4.00	10.8	79	2	4	2	8	5	0
	6-17-20		72	98.4	+7	90	5.00	10.6	82	2	2	1	11	2	0
20277	3-28-20	47 ♀	96	98.4	+43	40	2.05	290.0	43	0	1	0	1	49	6
	4-3-20		80	97.6	+21	65	3.00	160.0	70	2	2	0	2	22	2
	5-8-20		80	98.0	+15	72	3.50	900	73	2	7	0	8	10	0
19705	8-9-19	36 ♂	70	98.0	+14	90	5.481	238.0	76	1	3	5	3	11	1
	11-16-19		76	98.4	+20	83	6.351	115.0	74	1	2	3	2	16	2
19168	1-25-20	27♀	78	98.6	+15	85	5.001	38.0	81	0	1	4	4	10	0
	3-2-20		72	98.4	+18	96	5.111	32.0	78	1	2	4	5	9	1
	6-12-20		72	98.0	+17	82	4.451	76.0	79	0	2	2	2	14	1
17452	12-27-19	42	76	98.0	+20	95	5.351	129.0	71	4	3	6	2	11	3
	3-17-20		80	98.6	+22	80	4.201	72.0	78	1	3	1	1	13	3
19957	11-8-19	58♀	86	98.6	+14	80	4.301	11.0	78	1	3	4	11	3	0
	12-6-19		80	97.6	+8	80	4.401	13.0	83	1	1	5	7	3	0
19602	1-11-20	50♂	84	98.0	+12	70	4.101	24.5	81	1	2	4	7	5	0
18143	1-15-20	36 ♀	100	98.6	+46	40	1.901	12.0	42	0	0	0	0	15	43
	1-25-20		90	98.4	+47	38	1.351	6.0	40	0	0	0	0	15	45
	2-10-20		120	99.8	+57	33	1.401	4.0	32	0	0	0	0	10	58
17172	4-15-17*	29 ♂	80	99.0	+56	33	2.491	615.0	32	0	0	0	2	63	3
	12-8-19		102	101.0	+75	18	1.051	48.0	50	2	0	3	1	18	26
	12-21-19		84	99.0	+72	21	1.171	74.0	40	0	2	1	0	15	42
	1-11-20		104	99.2	+80	32	2.251	240.0	11	0	0	1	0	58	30
19254	2-4-20	46 ♀	88	98.4	+41	45	2.301	382.0	45	0	5	1	0	48	1
2077	1-17-20	38 ♂	100	98.8	+28	28	1.201	8.0	50	0	0	4	2	11	33
2011	1-3-20	9 ♂	104	99.0	+27	30	2.351	108.0	48	0	4	3	2	28	15
19325	3-26-20	47♂	88	98.0	+32	75	3.751	52.0	36	1	2	6	1	44	10
	4-20-20		84	98.6	+56	62	3.001	33.0	30	0	0	3	0	39	28
19180	12-30-19	34 ♀	84	98.8	+42	55	3.051	192.0	54	2	0	8	1	26	9
	1-11-20		70	98.4	+32	60	3.251	150.0	61	4	4	6	1	19	5
	2-29-20		82	97.8	+51	60	3.201	80.0	40	3	3	4	0	40	10
	6-14-20		72	98.0	+30	75	4.001	52.0	69	0	3	4	1	21	2
18291	1-4-20	33 ♀	80	98.2	+22	70	4.201	104.0	81	1	3	2	2	10	1
	4-5-20		90	98.0	+27	80	4.101	75.0	74	0	0	1	0	22	3
18571	12-14-19	42 ♂	84	98.0	+33	75	3.201	15.0	30	46	0	0	18	6	0
20118	2-14-20	27 ♀	100	980	+15	68	3.901	10.0	66	3	4	3	12	6	6
15274	12-16-19	62 ♂	88	98.2	+22	73	4.351	96.0	73	1	2	4	2	18	0
	12-29-19		78	98.0	+20	70	4.321	87.0	68	2	1	6	3	19	1
	2-9-20		80	98.0	+6	75	4.001	11.0	79	0	1	5	9	6	0
19692	1-11-19	29♀	78	98.6	+11	75	3.931	91.0	84	0	3	3	2	8	0
	12-20-19		80	98.6	+22	65	4.101	118.0	78	2	4	0	2	14	0
	4-6-20		84	98.6	+32	65	3.651	112.0	76	1	2	1	0	19	1

* DETERMINATION MADE AT THE PETER BENT BRIGHAM HOSPITAL

metabolism in these cases under consideration. That it plays more than a small rôle, however, seems most improbable, for the increase of metabolism in anemia is characteristically only of slight or moderate degree. Further evidence of this is seen in contrasting such cases as No. 17172 and No. 20299. On January 11, 1920, the basal metabolism of the former was 80 per cent. above normal, the hemoglobin 32 per cent., the white count 240,000 per cu. mm., the myelocytes 58 per cent., and the myeloblasts 30 per cent. On March 26, 1920, the basal metabolism of the latter was 34 per cent. above normal, the hemoglobin 40 per cent., leucocyte count 235,000, the myelocytes 30 per cent., and the myeloblasts 3 per cent.

Besides the relationship between increases of immature leucocytes and elevation of the basal metabolism, it was noted that other very immature bone-marrow elements occurred with distinct increases of basal metabolism. When blasts were numerous or megacaryocytes, cells noted by Minot that may appear in the circulation, were found the basal metabolism was higher than when such cells were not present. A further discussion in detail of the relationship between the bone marrow activity and the basal metabolism will not be given, as no further noteworthy observations were made.

The results of these observations, therefore, indicate that the basal metabolism in myelogenous leukemia bears a relation particularly to the number of immature white cells in the blood stream, regardless of the total leukocytosis. The highest values for the basal metabolism are usually found in cases with very high white counts and many myelocytes, or in cases showing high percentages of myeloblasts. Both of these findings probably signify great activity of the leukopoetic tissue and the basal metabolism determinations may be considered as indices of this activity.

Book Reviews.

Manson's Tropical Diseases. A Manual of Diseases of Warm Climates. Edited by PHILIP H. MANSON-BAHR. The Seventh Edition, Revised and Enlarged. New York: William Wood & Company. 1921.

Manson's Tropical Diseases has for years been recognized as one of the best text-books of tropical medicine. This new edition, much enlarged, is even better. There are many new illustrations, twenty-one of which are in colors. The order of presentation has been changed but slightly. The various subjects have been brought up to date and all new material pertinent to such a work has been incorporated. In this edition, as in the older editions, we have an admirable assignment of space in relation to the importance of the subjects treated. There is a sufficient treatment of medical entomology, medical protozoölogy, and medical helminthology to make the book valuable for the investigator of tropical diseases. This material is incorporated in the text and assembled in two appendices. A third appendix contains an adequate treatment of "Laboratory Methods as Applied to Clinical Medicine in the Tropics."

It is not possible, in reasonable space to analyze the material of this work. The editor has kept the size of the volume within reasonable bounds, nine hundred and sixty pages, including the index. The subject matter, particularly the sections on fever, abdominal diseases and animal parasites, makes the book of value to the general practitioner of medicine outside of the tropics. For the physician with curiosity, there is very entertaining and instructive material on tropical diseases, and a perusal of the book must certainly enlarge the medical horizon of any physician. The style is excellent, and while the book is less bulky and perhaps less comprehensive than some of the larger works on tropical medicine, for general purposes it seems to us to be the most admirable of them all, and the reviewer is inclined to believe that this work represents in tropical medicine what Osler's "Practice of Medicine" represents as a whole.

One fault the reviewer finds with the book is that the author does not give the specific references to much of the very important literature that he quotes. To do so would enhance the value of the book materially for students of tropical medicine.

Tuberculosis and How to Combat It. By FRANCIS M. POTTENGER, A. M., M. D., LL. D., F. A. C. P. St. Louis: C. V. Mosby Company, Publishers

There are many excellent books that have been written for the benefit of the layman or laywoman who has tuberculosis and who wishes to know something about it. Such books must, and necessarily do, vary according to the individual ideas of the physician and according to the class of patients that the physician meets and for whom the physician intends his book. This is why Dr. Pottenger's present volume varies so much from that of Dr. Lawrason Brown as well as from one for which the reviewer himself is responsible. Dr. Pottenger once told me that by the time his patients had taken the trip across the continent in order to gain health in the far West, which anyone will seriously acknowledge is a serious step to take and one not taken without prolonged consideration, that these patients were willing to do exactly what he asked them to do. He might have added with equal truth that the patients who took this trip across the continent were

necessarily to a great extent possessed of at least moderate means and of more than average intelligence. Bearing this in mind that Dr. Pottenger's book is intended for his patients who are distinctly different from the average patient whom one meets here in the East, namely, that they constitute a selected group, the book is a most desirable one. I am free to admit, however, that among the patients which I meet here in Boston there is a comparatively small percentage, not more than 20 or 25 per cent., for whom this book would be quite so suitable as one which contained less knowledge and which was a trifle more elementary.

I do not believe, for instance, that the average patient with tuberculosis cares, or is interested in calories. Diabetics and fat men and women, in my experience at least, are the chief persons who delve into the exact number of calories contained in a spoonful of food. The difference between tuberculous infection and tuberculous disease, although of paramount importance, likewise is something which it is doubtful would appeal or be of real value to a fairly large proportion of men and women with consumption. In Chapter VI entitled, "How Does Tuberculosis Affect the Patient?", the dividing of patients into six groups is almost a medical classification and a medical subject rather than one of the laity. On the other hand, his chapter entitled, "Early Tuberculosis Must Be Taken Seriously," is an excellent one and cannot be given too great emphasis. His chapter entitled, "What to do When a Diagnosis of Tuberculosis is Made," demonstrates clearly the point that I am making, namely, that this book is best suited, as Dr. Pottenger doubtless knows perfectly well, for patients not of the poorer classes or of the lower grades of intelligence. In this chapter, the patient is advised to go to a physician or to the proper specialist, but no mention is made as to his getting advice and help from an Out-Patient Department or Dispensary, or local Tuberculosis Association, or local or state Board of Health.

His remarks on "Rest" are excellent, emphasizing as they do, that few people know how to rest and that lying in or on a bed does not necessarily constitute rest. His chapter on "Tuberculin" is interesting. Opinions, of course, vary widely as to the value of tuberculin in pulmonary forms of tuberculosis. Personally, I am opposed to it; Dr. Pottenger is one of its most ardent advocates. I think that on the whole the book would be improved by leaving out tuberculin altogether or by simply stating that the patient should have no attitude toward tuberculin whatever, but should do what his physician advised in regard to this much disputed subject. What he says in regard to reducing the amount of coughing in Chapter XVI, is most important, as are the remarks he make in regard to pain and hemorrhage.

There are many subject staken in this book which are not found in others. Fog and rain, much feared by consumptives, are given their proper place. His chapter on "Coöperation" is excellent as likewise is the chapter on the need of outlining a definite program.

There is an immense amount of useful and valuable information in this book and there are many patients who will be greatly benefited by making a careful study of it. My own criticism of it would be that there are likewise many patients whose intelligence is not of a sufficiently high grade to assimilate or profit greatly by this volume. I envy Dr. Pottenger his "path of roses" in his practice, on which he apparently does not meet to any great extent with the stupid and unintelligent consumptive.

Textbook of Tracheo-Bronchoscopy (Technical and Practical). By SANITÄTSRAT DR. M. MANN, Senior Physician to the Department for Diseases of Ear, Nose and Throat, in the Municipal Hospital, Dresden-Friedrichstadt. Translated by A. R. MOODIE, M.A., Ch.B. (St. Andr.), F.R.C.S. (Edin.). With Fifty Illustrations and Five Plates in the Text, Ten Colored Plates in the Appendix. New York: William Wood & Co. 1921.

Endoscopy of the trachea and bronchi, which was first introduced as a practical measure by Killian in the last decade of the nineteenth century, has become an increasingly important department of laryngology. In all the recent textbooks of laryngology this subject receives consideration usually in connection with endoscopy of the larynx and oesophagus. There is, however, a surprisingly small number of books devoted to this subject, giving a comprehensive description of the method and its applications. The most complete and authoritative work is that of Chevalier Jackson, entitled "Peroral Endoscopy," which includes laryngoscopy and oesophagoscopy, as well as tracheo-bronchoscopy. It is, up to this time, the only important treatise on the subject in English. An addition to the literature of this field is therefore welcome. The recently translated book of M. Mann first appeared in German in 1912. In the present form it exhibits few changes from the early German edition. It is in three parts: the first, on the technic; the second on the practice; the third is composed of plates illustrating pathological conditions and bronchoscopic pictures.

In the first part, a description of the anatomy and a brief account of the history are presented, which are, on the whole, adequate, although a Bostonian objects to the omission of

Coolidge's name from the list of pioneers in bronchoscopy. The chapter devoted to instruments gives a full description of the instruments of Killian and the German school. It is perhaps natural that a briefer consideration is given to those of other nationalities, but one is surprised to find, in a work published at this date, omission of important contributions in recent years by Jackson, Coolidge, Mosher, Lynah and Lynch. For example, nothing is said of the problem of dealing with foreign bodies lodged in an upper lobe bronchus, with which Jackson has successfully dealt by means of special instruments and the aid of fluoroscopy; or Lynah's work on pulmonary abscess, his injections of bismuth bronchoscopically followed by x-rays of the chest, which he calls "lung mapping," and his treatment by suction apparatus, are not noticed.

The value of x-rays as preliminary to bronchoscopy for foreign bodies is emphasized, but there is a dearth of illustrations in this line and nothing said of the importance of stereoscopic x-rays. The use of the suspension apparatus, a most practical and important aid to upper tracheoscopy, is not considered.

The only mention of Mosher's numerous original instruments occurs in reference to his safety-pin remover, which is credited to "von Mosher." Omissions such as these prevent us from accrediting this book as up to date on the subject of instruments and technic. The methods of introduction of the bronchoscope in different sitting and recumbent positions, are well described and illustrated.

The second part, entitled "The Practice of Tracheo-bronchoscopy," is the most valuable to the student of this subject. The extraction of foreign bodies is covered in a systematic and well classified chapter, with voluminous illustrative details of cases. This is followed by chapters on the "Diseases of the Trachea and the Bronchial System," and on "Lesions of the Trachea and the Bronchial System Due to Disease of the Neighboring Parts." These subjects are also well covered as far as the pathology and the description of cases is concerned. But there is a notable lack of appreciation of progress in recent years in the technic of treatment. For one who wishes to acquaint himself with the clinical and pathological features of the subject, the book is of considerable value. But it fails, as we have pointed out, to keep abreast of the times in point of technic. The plates illustrating diseases of the tracheo-bronchi and neighboring parts, are of interest.

Human Embryology and Morphology. By ARTHUR KEITH. Fourth Edition. Longmans, Green & Co., Publishers.

The scope and aim of Professor Keith's work differ from those of most of the books on embryology written on the American Continent. In the preface to his first edition, in 1902, he maintains that "clinical utility was the criterion employed" in selecting his material, and in the present fourth edition he again says, "Here human embryology and comparative anatomy are dealt with only in so far as they bear directly on the nature of the human body, and reflect what the author has found to be useful in the course of his daily work and teaching." In accordance with this aim, the early development of the embryo is very cursorily dealt with in the first few chapters, almost as if they were intended for a review of a great part of the subject of embryology as usually taught in the colleges and medical schools here. There is no mention of the detailed study of sections of embryos, of the commonly used serial sections of chick or pig, no indication of laboratory work.

The author realizes this fully. At the beginning to Chapter V he says, "The main facts relating to the development . . . have been briefly sketched. We now turn to the consideration of particular parts of the human body, and naturally take up first the vertebral column—the main axis of the body." This is studied carefully from the point of view of ontogeny, mechanics, ossification, etc., as well as of development. Other parts or regions of the body are in turn described in the same way,—the brain, the skull, the face, the special senses and their central connections in the brain. The pharynx and neck are treated as an anatomical entity, with the related nerves, vessels, muscles and bony and cartilaginous framework. This treatment leads to occasional embryological incongruities, such as the description of the pharyngeal pouches before the derivation of the pharynx itself has been mentioned, and of the aortic arches and their adult derivatives before the vascular system as a whole has been traced from its origins; but with the little knowledge apparently pre-supposed, these gaps are not noticeable.

Although the author claims only that "every effort has been made to make the book representative of the latest British Research," he also refers frequently to the recent papers of American and other foreign embryologists. The illustrations, mostly diagrammatic, are adequate and usually readily understood. It is unfortunate that occasional misdirections to figures occur.

The book serves better than many other textbooks of embryology to show the relation of embryological derivation to adult structure, and for this reason is, perhaps, especially adapted for the use of surgeons and general practitioners.

Text-book of Embryology. By BAILEY and MILLER. Fourth Edition. Messrs. William Wood & Co., Publishers.

The latest edition of this well-known text-book shows several changes which should prove a distinct improvement. The chapter on the cell has been omitted "because in the opinion of the authors the previous training of the student who commences the study of the embryology of vertebrates has been sufficient to bring to his attention the salient features of cell organization." This opinion is a sound one, and the practice of eliminating from books of one division of science many of the subjects which naturally fall under the head of another division, could profitably be carried much farther. Other changes are chiefly in the form of rearrangements. The former editions treated the early processes of development, such as cleavage, gastrulation, and mesoderm formation in separate chapters, and in each traced the differences in various forms of ova, of Amphioxus, frog, chick, and mammals. This has now been altered so that the whole early development of each type is given as a connected entity in a single chapter, so that the student may acquire "a better understanding of the development of the germ layers by following the processes as a continuous series in a given animal." This should make the book more readily useful in the actual laboratory study of any form, and yet allow amply for comparison with other forms.

The chapter on fetal membranes has been moved from its former position and placed near the end of the book, so that one passes from the early development to the body form of the human embryo and fetus, and a consideration of the age, weight and length of body.

Part II is called organogenesis; a great portion of its subject-matter treats, however, of histogenesis, the development of the different tissues, frequently omitted from text-books of embryology. Its presence causes, perhaps, an awkward break in the continuity of the story of the development of the body as a whole, but this is chiefly noticeable in the first chapter of this Part II,—that dealing with the connective tissues and the skeletal system. Other systems are taken up in turn—vascular, muscular, alimentary, respiratory, urogenital, and so forth. The nervous system and organs of special sense occupy a generous portion of the pages. At the end of each chapter a section is given to an enumeration of the anomalies of the system just described, and at the end of the book a special chapter is devoted to teratogenesis. Throughout the book numerous well-chosen, recent references are given for further study. Many of the older illustrations have been replaced by newer, wisely selected from various sources.

The Surgical Exposure of the Deep-Seated Blood-Vessels. By J. FIOLLE, M.D., and J. DELMAS, M.D. Translated by C. G. CUMSTON, B.S.M., M.D. (Geneva). London: William Heinemann, Ltd. 1921.

This monograph is an extremely valuable reference book dealing solely with the technic of the exposure of the more inaccessible blood-vessels. Since it is based chiefly on war experience, it has its greatest use in traumatic surgery though it would also be of service for aneurysmorrhaphy. In every detail it shows originality, and the classical textbook technic is entirely swept aside.

The fundamental principle of the technic is very wide exposure not only of the supposedly injured vessel but also of all the vascular bundles of the region. For instance, an incision 30 cm. long is used for the vessels on the posterior aspect of the leg. This principle of a large, clear operative field is carried to its logical conclusion to the extent of severing any obscuring structure, such as the fibula for the bifurcation of the popliteal artery or the clavicle for the great vessels of the neck. However, the technic is not in the least ruthless. There are many very ingenious devices which avoid injuring intervening tissues while still allowing a wide exposure. All necessary precautions are taken to prepare for any possible hemorrhage during operation. The technic of anatomical reconstruction is carefully given in each case. Excellent illustrations are freely used. The book is not one for daily use but should prove invaluable for consultation in the occasional difficult case.

Diseases of the Skin. By RICHARD L. SUTTON, M.D., Professor of Diseases of the Skin, University of Kansas School of Medicine, etc. 1032 Pages, 969 Illustrations and 11 Colored Plates. St. Louis: C. V. Mosby Co.

This is a very large book. The diseases of the skin are taken up very fully as regards number although briefly, in most instances, as regards text. Not only are all those diseases included which we are accustomed to see in the ordinary text-book, but also many forms of tropical disease and others of foreign origin.

As stated, in most instances, the text is short and terse, with avoidance of detail. The principal diseases, such as eczema and syphilis, are, however, treated more exhaustively. The commoner diseases oftentimes require less than one page in their description. With their description go abundant references to the literature. As the author says in his introduction, he has given greater attention to references to foreign literature than to domestic on the ground that the latter are easily secured whereas the former are to be had only with difficulty.

Notwithstanding the brevity of the different articles, they suffice, with the aid of the profuse illustrations, to give a very good idea of the disease discussed. How it could be with a man not familiar with skin diseases, one who had no training, is a question. Yet so excellent are the illustrations, even he would, undoubtedly, get considerable information.

Many of the descriptions are out of the author's own experience. Others, judging by their frequent reference to certain individuals, are taken from the experiences of his friends.

In spite of its great bulk, the book is not unmanageable. The type is good and clear. The illustrations are numerous and excellent.

A Manual of Surgical Anatomy. By CHARLES R. WHITTAKER, Edinburgh. Third Edition, Revised and Enlarged. Edinburgh: E. and S. Livingstone. New York: William Wood & Co. 1921.

This third American edition of a well-known and excellent Scottish manual of anatomy, first published in 1910, needs no comment or commendation. It covers in more brief form the ground of Treves' familiar work, and has many of its merits. The details of surface anatomy are omitted for the sake of brevity and because they have been treated fully by the author in a previous work. In this new edition, the book has been slightly enlarged, thoroughly revised, and many new illustrations added, making a total of ninety, including several in colors and several radiograms.

The Pocket Anatomy. By C. H. FAGGE, London. Eighth Edition. New York: William Wood & Co. 1920.

The popularity of this well-known pocket manual is evidenced by the appearance of its eighth edition and fiftieth thousand. Subject to the criticism applicable to all such manuals, that they tend to produce in the student the appearance of information without the substance of knowledge, this book is an excellent summary of anatomic data. It is an interesting instance of post-war feeling that in this edition the old anatomic nomenclature has been reinstated throughout.

The Practical Medical Series. Vol. III. Edited by CASEY A. WOOD, C.M., M.D., D.C.L.; ALBERT H. ANDREWS, M.D.; GEORGE E. SHAMBAUGH, M.D. Published by The Year Book Publishers, Chicago.

Volume III of *The Practical Medicine Series*, concerning the eye, ear, nose and throat, has been recently published. It appears in its usual attractive binding and size: consistent with issues of previous years. The book contains an excellent review of some of the best recent literature in the respective fields of ophthalmology, otology, laryngology and rhinology. The articles are collected from world-wide sources, and besides being well selected and condensed contain many valuable editorial comments.

It is a volume well worth reading, either by the specialist or general practitioner.

The International Medical Annual. A Year Book of Treatment and Practitioner's Index. The 39th Year, 1921. 564 pp. by Numerous Contributors. Printed in Bristol, England, by John Wright & Sons, Ltd., for William Wood & Co., New York.

This is another publication by contributors chiefly residing in Great Britain, that reviews selected papers. These reviews refer not only to internal medicine but also to surgery and the specialties. Some of the reviews are in the nature of original summarized contributions. The volume is excellently arranged, concise, and the articles well selected. There are forty good plates. The volume offers definitely more to the practitioner than the volume reviewed above.

Studies in Deficiency Disease. By ROBERT MCCARRISON. Oxford Medical Publications, 1921, 268 pp. London: Henry Frowde and Hodder and Stoughton.

This monograph presents the reader with a consecutive account of the results of experimental researches into the nature of deficiency disease and points out the application of the results to their prevention. The book is divided into four parts:

1. Experimental Methods and the Vitamines.
2. Factors Influencing the Onset of Deficiency Disease and Symptomatology.
3. Pathogenesis of Deficiency Disease.
4. Practical Application.

There are 82 illustrations of preparations made by the author. The subject is presented from a somewhat different aspect than that of deficiency disease. Other work than that of the author is mentioned, but in general the monograph consists of a review of the author's own studies and a consideration of their practical application from this point of view. The book is published in attractive form and well arranged. It will be found distinctly valuable to those interested in this important subject.

The Heart—Old and New Views. By H. L. FLINT. New York: 1921.

This little book by Dr. Flint is of considerable interest because it takes up the historical story of knowledge of the heart; starting with very early Sumerian times, 4000 B.C., he

brings us up to the present researches of Thomas Lewis. Unfortunately he does not include the dramatic discovery of the mechanism of auricular flutter and fibrillation made within the last two years by Dr. Lewis. The discussion of the writings of the great physicians from the time of Hippocrates, who have worked on the heart, is very interesting. The preparations for William Harvey's discovery of the circulation of the blood by the school of his day is well brought out; one appreciates that this discovery was not made out of a clear sky but that for at least a hundred years there had been definite development of knowledge of the circulation, not, however, well expressed or proven until Harvey's time. An interesting observation on Harvey, not taken up in this book, was that of his description of auricular fibrillation in 1628. This is found in his work on the circulation of the blood, in which he describes the condition as "undulation in the auricles." Due credit is given to the more recent workers in the past century, the physiologists particularly, who invented graphic methods—Chauveau and Marey, Mackenzie, and Einthoven. Wenckebach's valuable contributions on the interpretation of arterial tracings are, however, not discussed. He probably did as much as Mackenzie in developing the clinical application of the graphic study of the pulse. It was he who first brought out the importance of the clinical recognition of the dominant rhythm of the heart.

The last part of the book, in which there is a discussion of the present knowledge of cardiac irregularities and function, is not as well done as the first part. A great deal of it is too brief, and a mere repetition of work covered satisfactorily, already, by Thomas Lewis in his little books on *Clinical Disorders of the Heart Beat*. Occasional errors have crept in, such as the statement on page 30 that the inversion of the *T* wave in Lead II is of ill omen and that patients presenting it have been short lived. This is not so. The most common cause of inversion of the *T* wave is the effect of digitalis on the heart, and this is a very common finding in the clinic and of no serious import. There is a good deal of stiffness expressed in sticking to the old discussion of the five functions of the heart muscle. The last brief section entitled, "The Principles of Treatment," like the section entitled "The Systolic Murmur," might well have been left out in a work of this kind or else expanded much more fully.

To anyone interested in a study of the heart, however, the historical survey in this little book should prove of value and interest.

Physical Diagnosis (Second Edition). By W. D. ROSE, M.D. St. Louis: C. V. Mosby Co. 1921.

This second edition of Rose's work on Physical Diagnosis is a volume of nearly eight hundred pages with excellent illustrations and diagrams. The paper and print are of the best quality and the subject-matter is arranged for easy reading. Two-thirds of the book is devoted to diseases and physical examination of the chest. Although there is practically nothing new in the subject-matter the arrangement of what is given is so clear and well presented that this volume may be highly recommended to students and practitioners as well.

The Morphologic Aspect of Intelligence. By SANTE NACCARATI, M.D., Sc.D., Ph.D. Columbia University contributions to Philosophy and Psychology. Vol. 27, No. 2. New York. 1921.

A review of this small monograph upon an interesting subject, leaves the impression that too often the author has tried to construct a complicated sequence leading from cause to effect, out of links of such dubious scientific value as "I feel justified in making the following statements, because I believe—"

A more careful review of the literature upon the possible correlation between mentality and body form, would have indicated to the author that many of his general observations had been previously made by others, in at least equally lucid style. Naccarati does, however, make several statements of definite value, based upon scientific observations. Thus, intelligence tests were used to estimate the mentality, and exact anthropologic measurements were utilized to determine the body type in a series of 221 students between 20 and 25 years of age.

Among the observations presented by Naccarati in his summary, are the following:

"Intelligence cannot be correlated with a simple physical trait such as height, weight, cephalic index, etc. A basis for correlation must be found in a compound physical trait which is made up of several anthropometric traits.

"By morphologic type is meant the physical constitution of the individual when the development of the extremities and that of the trunk are reciprocally considered and compared. The 'morphologic index' of an individual is given by the ratio value of the extremities (length of one upper and one lower limb) to the volume of the trunk.

"My experimental study has shown that a positive correlation exists between intelligence and the ratio of height to weight. The average coefficient of correlation found in the group of 221 students was equal to +.228 with a P.E. equal to .044."

Naccarati concludes that what he prefers to call the microsplanchnic type is the essentially intelligent type of human.

In view of the fact that this microsplanchnic type of Viola apparently corresponds to the

hyperontomorph type of Bean, the carnivorous type of Bryant, the asthenic habitus of Stiller, and other similar classifications,—in other words, to the long, thin type of human,—Naccarati seems eventually to fall in line with previous writers upon this subject, as Lewis. In addition, he provides further scientific proof of the existence of a correlation between mentality and general body form, as distinguished from single bodily characteristics, such as height.

Anxiety Hysteria — Modern Views on Some Neuroses. By C. H. L. Rixon, M.D., and D. Matthew, M.D. 124 pp. New York: Paul B. Hoeber. 1921.

Psychoanalysis and the War Neuroses. By Drs. Ferenczi, Abraham, Simmel and Jones. Introduction by Prof. Freud. International Psycho-analytical Press. 1921.

As these two volumes deal with identical subjects, that of the mechanism and psychogenesis of the war neuroses, it seemed best to review them together. The difficult problem of the interpretation of the war neuroses, ranging from the search for organic brain lesions to purely physiological interpretations, has gradually simmered down to what should have been clear from the beginning, namely, that these neuroses are purely psychological in origin and should be treated by psychotherapy, as in these disorders the strain of war experience has been merely a precipitating factor. With the exception of etiology, they are identical in mental mechanism with the neuroses encountered in every day life.

The first of these two volumes is written very clearly from the psychoanalytic standpoint, although these authors, without adequate reason, have discarded the term psychoanalysis and in its place employ that of "mental exploration," claiming that the latter is free from the sexual connotation which is linked up with the former term. Had they gone more deeply into the unconscious mental life of the patients analyzed, they would have undoubtedly found, as is so clearly demonstrated in the second volume of this review, a profound psycho-sexual factor. While they discard psychoanalysis, yet they use the Freudian theories and methods throughout the book. At the same time they disagree with Freud in some particulars, an attitude which is very commonly found among many neuro-psychiatrists. However, the book is clearly and simply written, is direct in its manner without being too dogmatic, and gives a lucid understanding to the physician of the many psychological mechanisms which enter into a war neurosis and at the same time of the neuroses of peace. The insistence on purely psychological methods as distinct from drug therapy and the encouragement of the patient to freely express his symptoms and conflicts is admirably done. However, in the dream analyses, the authors seem too easily satisfied with the superficial associations of the manifest content of the dream, overlooking the deeper implications of the latent content.

The second of these two volumes, with the exception of the contribution by Dr. Ernest Jones, is composed of papers read in the symposium on the war neuroses, held at the Fifth International Psychoanalytical Congress in Budapest, September, 1918. This symposium was conducted along purely psychoanalytical lines. It would exceed the limits of this review to give, even in summary, the details of this splendid and fundamentally sound symposium, other than to state that the psychoanalytic conceptions of the libido are here proven to be as fundamental for the war neuroses as for the peace neuroses. Such a piece of work as embodied in this symposium constitutes one of the greatest advances to war neurology with which we are acquainted.

The Treatment of Wounds of Lung and Pleura. By Professor Eugenio Morelli, Pavia, Italy. Translated by Lieutenant-Colonel Lincoln Davis, M.C., U.S.A., and Frederick C. Irving, M.C., U.S.A. Boston: W. M. Leonard. 1920.

This latest volume in the Case History Series is a translation by two Boston surgeons of Morelli's Italian monograph, based on the study of the mechanics and physiology of the thorax. It is of particular importance in presenting for use in civil practice the most successful methods in the treatment of thoracic wounds, of pleurisy with effusion and of empyema, whose development constituted one of the greatest medical advances due to the great European War. After a preliminary study of pulmonary physio-pathology and of the symptomatology and clinical pathology of the various thoracic diseases, the author presents his principles for their treatment, describing his apparatus for inducing pneumothorax and of empyema. The work is illustrated with a series of sixty-five case histories, which are illuminatingly discussed. There are eight text figures, and at the end, a series of thirty x-ray reproductions. The volume is a valuable contribution to the literature of surgical progress, reflecting credit alike upon author, translators, and publisher.

Heart Disease and Pregnancy. By Sir James MacKenzie. London: Henry Frowde, and Hodder and Stoughton. 1921.

This new volume in the series of Oxford Medical Publications, illustrated by twenty-one text figures, is a welcome contribution to conservative sanity in the interpretation of treatment of cardiac conditions complicating pregnancy. As a recognized authority on cardiac disease, the author discusses the normal changes in the

maternal circulation during pregnancy, labor, and the puerperium, the changes in the diseased heart in pregnancy, and the physiology of the heart in relation to its efficiency. He presents the law of heart failure under effort and at rest, and discusses the significance of murmurs. He considers in detail the clinical picture and importance of mitral regurgitation, mitral stenosis, aortic disease, cardiac arrhythmia, auricular fibrillation, paroxysmal tachycardia, cardiac neuroses, and congenital defects. Finally, in a brief, concluding chapter, he summarizes admirably the management of cases of pregnancy with heart disease, pointing out the tendency of such cases to easy, premature labor, one of nature's defensive mechanisms. His only indication for interrupting pregnancy is "when the heart failure is so extreme as to threaten (maternal) life." In all other cases, he treats the disease by other means than by removing the complication. It may be wished that this monograph of Dr. MacKenzie's should serve to mitigate the tendency of many modern clinical obstetricians freely to induce abortion, or to advise against future pregnancy, upon inadequate cardiac indication.

Oxford Medicine. In Six Volumes. Volume Four, p. 938. Edited by HENRY A. CHRISTIAN and SIR JAMES MACKENZIE. New York: Oxford University Press.

The fourth volume of this system of medicine contains thirty chapters or monographs, by twenty-two American and four English contributors. In general, the volume deals with diseases of metabolism, lymphatic tissue, diseases of bone and muscles, industrial medicine, and a few of the infectious diseases.

In contrast to one of the other recent systems of medicine, the editorial arrangement may be commended in that the number of pages devoted to a subject bears some relation to the practical importance of the disease under discussion, and even here it is difficult to understand why more pages should be given to the discussion of the relatively uncommon disease like gout than to one so tremendously common and important as diabetes mellitus.

It is probable that two different reviewers might select an entirely different set of articles for particularly favorable comment dependent on their own particular interest, but to the writer it seemed that contributions deserving particular mention should include Hodgkin's Disease, by Longcope and MacAlpin, a readable, well arranged monograph of some forty pages, with good illustrations and bibliography. The chapter on Gout, by Sir Thomas Clifford Albert, with the collaboration of F. G. Hopkins and C. G. L. Wolf, with sixteen pages on the subject of Purin Metabolism, is perhaps the most pretentious and detailed article in the volume. The chapter on Diabetes is handled with a habitual thoroughness and excellence of detail that we are accustomed to associate with that master of the subject, Elliott P. Joslin, and in fact it would be difficult to find anywhere a medical paper freer from padding or more crowded with sound and valuable information. This is the one article in the volume that it seems could profitably have been given more space. The inclusion of three standard test diets should be a relief for those physicians who are too busy or are unwilling to work out individual diets for their patients. Chronic Arthritis, "Arthritis Deformans," by Thomas McCrae, is clear cut, sane and readable; his handling of the terminology of the various types of arthritis helps to clear up and simplify a situation of a good deal of complexity in the mind of men not specializing in the diseases of joints. Other chapters which deserve mention are: Diseases of the Bones, by Edwin A. Locke; Influenza, by Henry A. Christian; Acute Lobar Pneumonia, by Ernest E. Irons, and Septicaemia, by Walter Tileston.

The reader interested in Industrial Medicine will find a fascinating chapter by Cecil K. and Katherine A. Drinker.

In a book of this scope it is obviously impossible to more than suggest such chapters as appeal to the reviewer, but in general the contributions are adequate, not tediously long, and it is fair to say that Volume Four maintains the general standard of excellence set by the preceding volumes.

Readings in Evolution, Genetics and Eugenics. By HORATIO HACKETT NEWMAN, Professor of Zoölogy in the University of Chicago. 523 pages. University of Chicago Press.

In his preface, the author states that this book was prepared to meet a specific demand for an account of the various phases of evolutionary biology. It consists largely of excerpts from the older classical evolutionary writers and the modern writers, joined and correlated by passages written by the author himself.

Part I deals with the history of the development of evolutionary science; Part II is a presentation of the evidence of organic evolution; Part III deals with causo-mechanical theories of evolution; Part IV concerns itself with genetics, or modern experimental evolution, and Part V with eugenics.

To the reviewer, the perusal of Professor Newman's book has been attended with great pleasure and profit. It is not easy to present a subject by means of extracts from different writers, but Professor Newman, while doing this, has succeeded in preserving the unity of his subject. The book gives us a very comprehensive idea of evolution and of the factors which determine heredity. It is not a book to be lightly skimmed, but it is very readable and is distinctly worth reading.

Current Literature Department.

ABSTRACTORS.

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CORNIOLEY AND KOTZAREFF (REVUE DE CHIRURGIE—No. 4—1921).

Cornioley and Kotzareff have conducted a series of experiments on guinea pigs and rabbits and have come to the following conclusions concerning shock:

That in shock due to trauma of muscle, soluble albuminoid bodies are set free from the area of trauma and that a constant modification of the blood plasma is seen with an increase in the number of eosinophils. They have thus formulated a general law as follows: The organism has a defense mechanism for all zoöexogenous or zoöendogenous intoxication of which one of the symptoms is eosinophilia.

The authors wish to demonstrate the endogenous origin of shock. They have demonstrated microscopic lesions in different organs resulting, they believe, from traumatic toxemia. The prominence of these lesions is in direct proportion to the duration of the shock. In other words, the more massive are the toxins absorbed at the onset of the shock the shorter will be the evolution of the shock, for they will overwhelm the nervous system and death will supervene, either through cardiac or through respiratory paralysis, before advanced organic lesions are produced.

If the quantity of toxin is insufficient to kill at the onset, or the organism has time to elaborate antitoxins, there will be destruction of elements of various organs. They have in mind especially the glands of internal secretion, the adrenals in particular, which they have seen constantly modified, even macroscopically.

These lesions are of a hemorrhagic nature and bring about a hyposecretion. These same phenomena are observed in the liver, the excretor of organic toxins.

It follows that treatment of shock should tend to make up for the temporary deficiency of certain glands.

In the first series of experiments, the total blood of the shocked animal was considered. This blood injected in different doses always caused the phenomena of shock in fresh animals; not mortal, it is true, but always identical. There was a lowering of temperature, accompanied by shivering, then by somnolence. The whole lasted some hours, then little by little these phenomena disappeared and the animal returned to its normal condition. If death did not supervene in these shocked animals, they considered that the toxins injected were not of a lethal quantity.

In a second series they experimented with blood serum, to avoid coagulation, and they have succeeded in killing animals by injecting large enough amounts of serum into the peritoneal cavity and the jugular vein. These animals presented the shock syndrome.

Following these results, they undertook researches as regards the serology of traumatic toxemia.

In the first series, they vaccinated fresh animals with blood injections from shocked animals. In another series, they obtained passive immunization by previous injection of serum from shocked animals. The animals thus protected were then submitted to a constant muscular traumatism, and most of them withstood the shock. All showed slight signs of shock.

In the cases under consideration, they were concerned with an organ extract, namely muscle, and the injecting of very slight amounts of it (drawn from the circulation of the shocked animal) into a fresh animal, immunized rapidly this latter against a subsequent injection which otherwise would have been mortal.

As a corollary they have been able, by means of blows gradually more severe, to immunize fresh animals. The morbid phenomena were identical with those of the preceding series.

After obtaining these facts it has seemed to them logical to attempt a serotherapy of shock. They have attempted to show that following repeated shocks, toxins neutralize anti-toxins, the blood of animals thus protected only provoked phenomena of anaphylaxis, in no way comparable to those met in the course of toxemic shock.

[W. S.]

THE PRESENT POSITION WITH REGARD TO THE TREATMENT OF ANKYLOSTOMIASIS.

McVAIL (*Ind. Med. Gazette*, Sept., 1921) discusses the present-day treatment of hookworm disease in India. Of the many remedies which have been recommended, two only stand the test of recent research, *viz.*: thymol and oil of chenopodium. With each, certain and different precautions are necessary.

Thymol is soluble in water in the proportion of 1 : 1500 but is freely soluble in fats, oils and alcohol. The patient should have no food after a light meal the evening before treatment (6 p. m.). At 10 p. m. he should receive an ounce of magnesium sulphate or some other saline purge. At six in the morning if the purge has acted well he is given twenty grains of finely powdered thymol mixed with an equal quantity of powdered sugar of milk. This is repeated at 7.30 a. m. and at 9 a. m. At 10.30 a. m. a second saline purge is given. From the time the first purge is given until the second purge has acted, no oil, fats or alcohol or any other food must be taken and only the minimum amount of water. While the thymol is acting the patient must stay in bed. Treatment should be repeated in a week or ten days, and subsequently the stools should be examined for ova once a week for several weeks, and a third treatment given if necessary.

The dose of chenopodium oil for an adult is m xxx in three portions of m x each, given at hourly intervals. The required quantity is squirted into a hard gelatin capsule. No preliminary purge is required and a subsequent purge may also be omitted unless it is desired to collect the expelled worms which may otherwise be digested. Starvation during treatment is not necessary. If toxic symptoms appear a purge of magnesium sulphate should be given at once. Treatment should be repeated in a week. To avoid cumulative toxicity not less than a week's interval must be allowed.

[L. D. C.]

THE RELATION OF UREA TO UREMIA.

LEITER (*Arch. of Int. Med*, Sept., 1921) finds that the injection of urea intravenously in dogs produces a train of symptoms entirely analogous to that found in the convulsive or true uremia in man. Lesions are produced in the alimentary mucosa that may be related to uremic colitis. Chronic uremia in man, ending ultimately in convulsions and coma, may be accounted for by urea intoxication if it is assumed that the time element in the clinical cases is as important as the high concentration of urea in the animals when injected. The asthenic condition produced by ligation of both ureters involves probably many more factors than urea retention alone; severe general metabolic disturbances must necessarily follow. The writer's experiments showed that there is an active excretion of urea by the stomach, bile and intestine when excessive amounts are present in the blood.

[L. D. C.]

METABOLIC STUDIES ON A CASE OF DIABETES INSIPIDUS.

RABINOWITCH (*Arch. of Int. Med.*, Sept., 1921) studied the basal metabolism of a case of diabetes insipidus, and found a normal rate. There was no evidence of increased activity greater than would be expected with the dose of thyroxin administered. A diminished sugar tolerance was demonstrated, suggesting hyperfunction of the pituitary, and hypofunction of the suprarenals was suggested by subnormal response of the basal metabolic rate to epinephrin. A balance apparently was struck between those two abnormal functions in keeping the basal metabolism unaltered. The kidney function was normal except for inability to excrete chlorides properly. The hyperchloraemia found was probably compensatory and not a true retention. The administration of pituitary extract caused a diminuition of the polyuria and an increased rate of flow and an increased concentration of salt in the urine.

The writer concludes that the theory advanced that diabetes insipidus is produced by a lack of some internal secretion which normally regulates and moderates diuresis by acting on the renal cells holds in this case.

[L. D. C.]

CAROTINEMIA.

HEAD AND JOHNSON (*Arch. of Int. Med.*, Sept., 1921) report a case of marked orange-yellow skin pigmentation, most intense in the palms of the hands, without involvement of the sclerae in an adult with moderately severe diabetes. Carrots had formed a heavy component of the previous diet. The blood serum had a bright golden yellow color which was chemically demonstrated to be due to carotin. The urine showed no bile pigments, and withdrawal of the carrots from the diet caused a disappearance of the pigmentation.

[L. D. C.]

BETELNUT CHEWING AND ITS EFFECTS, INCLUDING CANCER OF THE MOUTH.

ELLIS (*Arch. of Int. Med.*, Sept., 1921) reports on a study of the effects of betelnut chewing in Siam. He finds that decay of the teeth is prevented almost completely by the deposit of concretions, but that neither antiseptic nor bactericidal action on the flora of the mouth is exerted by the substances chewed. Oral or constitutional effects of this habit, which is universal in Siam, seem to be negligible, but it leads to chronic changes in the mucous membrane of the mouth, recession of the gums, pyorrhea alveolaris, deposit of lime concretions on the teeth, atrophy of alveolar processes and loosening and loss of teeth. Betelnut chewing does not frequently cause cancer of the mouth, but in some cases it may lead to this result.

[L. D. C.]

PROGNOSIS OF PLEURISY IN CHILDHOOD.

NOBEL (*Wien. klin. Woch.*, Sept 1, 1921) reports from Pirquet's pediatric clinic at Vienna a study of 78 cases of pleurisy in childhood. He finds that practically all the pleurisies of children, not demonstrated to be of other etiology, are tuberculous. There was a mortality of 16 2/3 per cent. Of the investigated survivors, 43 2/3 per cent. were fully recovered; 36 per cent. showed slight persistent lesions; 10 per cent. showed more or less serious after-effects. Nevertheless, the prognosis of infantile tulberculosus pleurisy is, on the whole, good. Generalized infection with tuberculosis from it is hardly to be found.

[R. M. G.]

DIFFERENTIATION OF TUBERCLE BACILLI.

KARCZAG (*Wien. klin. Woch.*, Sept. 8, 1921) reports from Korányi's medical clinic at Budapest his studies in the differentiation of tubercle bacilli in stained preparations by the catalytic oxidation method. He finds that tubercle bacilli in sputum stained with carbol-fuchsin may be differentiated from non-acid-fast bacilli and other sputum constituents by catalytic decolorization. Tubercle bacilli withstand the solvent action of a strongly hydrotropic agent, sodium benzoate in 50 per cent. solution, which dissolves other bacilli and sputum constituents, except the elastic fibers of lung tissue.

[R. M. G.]

ROENTGEN TREATMENT IN GASTRO-ENTEROSTOMY.

LEUK (*Wien. klin. Woch.*, Sept. 15, 1921), in a preliminary communication from Holzknecht's central Roentgen laboratory in Vienna, discusses Roentgen treatment of ill-functionating gastro-entero-anastomoses. In 13 out of 19 such cases with pain at the site of anastomosis the disability was removed by Roentgen treatment. Probably spasm plays a large part in such cases, and it is this spasm which is obviated by Roentgen treatment. To prevent peptic ulcer of the jejunum, it is suggested that operated ulcers should be prophylactically x-rayed after operation.

[R. M. G.]

TUBERCULOUS INFECTION AND TUBERCULOUS DISEASE.

HAMBURGER (*Wien. klin. Woch.*, Sept. 29, 1921) reports from his pediatric clinic at Graz his studies on the pathology of tuberculosis. He considers that tuberculous infection is spread directly from person to person by droplet transmission at conversation distance. Older children may become manifestly sick and in rare cases may even die of tuberculosis as a result of their first infection. Prophylaxis against extra-familial exposure should be especially urged in tuberculosis prevention.

[R. M. G.]

ATROPHY AND INACTIVITY OF PAROTID GLAND, FOLLOWING OPERATIVE OBLITERATION OF STENSON'S DUCT, IN CARCINOMA OF THE CHEEK.

HUPP, FRANK LEMOYNE (*Annals of Surgery*, September, 1921) writes as follows.

Atrophic sclerosis of the parotid gland follows obstruction of Stenson's duct.

Its extent is in direct proportion to the degree and duration of obstruction.

The addition of an element of infection may hasten the hyperplastic process.

Distension of the duct may persist long after the gland has undergone almost complete fibrous atrophy.

Fistula of Stenson's duct may be permanently cured by double ligation and section of the duct as close as possible to the gland.

Operations on the bacterially rich outer third of Stenson's duct are much more frequently followed by fistula than are similar interventions on the inner third of the duct.

The effects of incomplete obstruction or stenosis of the salivary ducts are frequently found in the parotid and submaxillary glands, where, by simulating malignancy, they may lead to grievous mistakes in surgical therapy.

From this study and out of the abundance of an interesting literature, including experimental, surgical and non-surgical, we may briefly conclude:

1. That by crushing the duct of the parotid there may follow histologic changes leading to an atrophic sclerosis, with suspension of the activity of the gland.
2. It is fair to assume that this condition is influenced by the use of radium alone or combined with the x-rays, resulting in a replacement of the gland by a proliferating fibrous tissue.
3. Further experimental evidence is wanting before we may depend on operative obliteration of the parotid duct to arrest the flow from a salivary fistula.

[E. H. R.]

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DANGERS AND DUTIES.

DR. HOBART HARE, Professor of Therapeutics and Diagnosis in the Jefferson Medical College, in an address before the Medical Society of New Jersey, on the "Dangers and Duties of the Hour," suggests the following important influences which the profession should recognize:

First: Standardization of everything we touch and do, often by instigators who have not made a success of practice, or as a result of some fault in their mental structure, go about devoting themselves to the task of trying to direct their successful brethren.

Second: Adverse legislation.

Third: Certain dangers inherent in group practice.

Fourth: The burden imposed by the Harrison Act and the injustice of the taxation under it, the proceeds of which are not devoted to the uplift of the profession or benefit of the people needing narcotic drugs.

Fifth: Lack of united effort in opposition to inimical laws and the invasion of the cults.

Sixth: Serious faults in the organization and functioning of the American Medical Association, as shown in the membership and behavior of the House of Delegates.

There is evidence of general, but rather passive agreement with all his contentions except the last. Few have been inclined to criticise the doings of the House of Delegates because there is general recognition of the power and influence of the A. M. A. It has certainly carried on aggressive campaigns against the low-grade medical colleges, the charlatans and the nostrum frauds, and has been a power in promoting ethical practice, but one may reasonably fear that Dr. Hare's criticism is, to some extent, logical.

He contends that the House of Delegates is ruled by a few, for although it is made up of delegates from all the state societies "who are worthy members of the medical profession; but they are not usually chosen as members of the House of Delegates because they know anything about the business that is going to be transacted." He then goes on to describe the passage of motions made on recommendation of the "Council on So and So," and voted for by members who often do not understand the meaning and effect of the vote.

This criticism is the common criticism of all representative legislative bodies. There are always leaders in such assemblies, and leaders are astute, ambitious, and have ability in moulding plastic human material. They would not be leaders unless they had these qualities. They may not always use their power judiciously, but it is fair to assume that they believe that they are working out plans for the greater good to the greater number, even though personal ambition may enter into the consideration of the means to an end. The man who hasn't faith in himself cannot be a successful leader, and the men who have a common purpose naturally group themselves together and plan for the adoption of formulated policies. It is somewhat in evidence that power is too much concentrated in the House of Delegates and that the sentiment of the profession as a whole may not always be fairly considered; but this is not so much the fault of this body as it is of the constituent societies of the Association.

The selection of delegates should be made the subject of careful study and the appointment should be given to wise men who can exert influence in an assembly. Some men, entitled to honor by reason of valuable work in medicine, may be of no value in such bodies, for the experience and training of many brilliant teachers and practitioners fit them more for scientific rather than deliberative or administrative work in controversial conventions. If there is reason for changing the personnel of the House of Delegates, let state delegations get in touch with each other and build up an organization with a purpose, and go in prepared to exert corrective influences.

The JOURNAL has previously suggested that after well-qualified delegates have been selected,

they should be kept in office, for continuity of service adds to influence. Dr. Horace D. Arnold, after completing his service in the House of Delegates, presented the same argument to our own Council in his report submitted in 1914.

THE PRACTICE OF MEDICINE BY NURSES.

SINCE the editorial on this subject was published in the issue of December 15, further investigation shows that an indemnity insurance company operating in a city has arranged to care for accidents which may occur in a group of industrial plants. The system inaugurated is as follows: A physician and a corps of nurses are employed. In ordinary minor injuries, one of the nurses attends the case, and if she considers that the injury can be cared for by her, continues to dress the wound until the time for the regular visit of the physician in charge. If the injury is of a severe type the physician is called in the first instance. The nurses acting under the physician follow the rules laid down for the care of minor injuries. The question of the nurse's ability to perform this duty is not the issue. The law of the State is that no one may practise medicine without being registered as a physician, and provides, among other exemptions, that anyone may render an emergency service. No judicial opinion has been rendered as to the definition of an emergency. The dictionary defines emergency as "An unforeseen occurrence or condition calling for immediate action."

Everybody would agree that a fainting person, or one with haemorrhage, should have emergency treatment before the arrival of a physician but, beyond conditions of that type, one may logically contend that since the State registers physicians and makes registration dependent on certain conditions, and further lays burdens on the physician, that no one may have the privilege of a physician without being recognized by the State as such.

Whether or not this contention is sound, one may advance the opinion that continued treatment of even minor injuries without direction of a physician, must be the illegal practice of medicine, especially since, in the case of a nurse employed by an insurance company, the service is paid for. Even though the injured person does not pay the fee directly, he does so under the law governing industrial accident insurance, for the service of the operator carries, as one of the returns, an obligation on the part of the corporation, or insurance company, to provide medical care.

If, then, these contentions are sound, nurses must refrain from practising medicine, for if they can be allowed to do so, there is a loophole in the law which physicians may properly object to, and remedial legislation should be secured.

If the insurance companies, industrial organizations and the professional staff employed by them, do not accept these views, the matter should be tried out in the courts, in order that the situation may be clarified. Nurses are accustomed to do as they are told by physicians, and are not intentionally blameworthy, and should be protected. It is hardly conceivable that any physician desires to deprive other practitioners of the lawful opportunity to obtain the business to which he is entitled, and it is probable that an understanding may be reached which will prevent future complications.

The medical societies should pass resolutions defining the scope and limitations of the work which may properly be performed by a nurse, or else have a judicial decision through a test case. If, however, members of a society should ignore the recommendations adopted, then more active measures could be taken, but in all probability, all would cheerfully comply with rules adopted.

THE GRENFELL FUND.

THE interesting letter written by Dr. Wilfred T. Grenfell, published in the JOURNAL of December 8, brings again before the profession the character of the man and the difficult nature of his work. His name will stand for all time among the heroes who have exemplified the highest ideals of medicine. Not only a pioneer in unknown regions, and on uncharted seas, but also as the missionary doctor, he has carried to the inhabitants of a comparatively desolate region the resources of medicine and an example of the best product of civilization. His reward has been the satisfaction which comes to a man who sees an opportunity for service and fills the need to the limit of his capacity. His ambition now leads him to attempt the creation of a fund, the income of which will be enough to maintain and extend the work inaugurated. He recommends an endowment of one and one-half million dollars. If this amount is not forthcoming, how can his service be maintained? It requires an organization not dependent on the life of one man but, in addition to personnel, an equipment which would make the service satisfactory to those engaged in it.

Dr. Grenfell's communication came in answer to a request for a letter, and he does not know of this statement, so that his response was purely an exhibition of his disposition to furnish some entertainment for our readers. He is the last person to employ advertising methods or to try to exploit his work, but spontaneous offers of financial or other assistance

would, without doubt, be welcome. If there could be some substantial expression by our Society of appreciation of his work, it would be fitting.

DANGER INCIDENT TO EMPLOYMENT OF CHIROPRACTORS.

The *New York Times* has reported two cases of appendicitis treated by chiropractors, both resulting in death. Although the parents of the patients were justly alarmed by the cruel manipulations of the chiropractors, they were beguiled by the assertions of these pretenders to procrastinate until too late to bring effective treatment to the sufferers.

Several other cases are under investigation, and may result in suits at law. Large numbers of these unqualified men are being sent forth, each year, from the chiropractic schools, and state after state has legalized this cult. Massachusetts will be assailed. People should be instructed. Doctors should read the reports submitted by Dr. Channing Frothingham, which have been published in the Journal.

MEDICAL INSPECTION OF BOSTON SCHOOLS.

The chart showing some of the details incident to the management of communicable diseases among Boston school children is of interest to all who have to do with these problems (see following page).

Although there is a difference of opinion among epidemiologists as to the period during which some diseases may be transmitted, Boston is adopting the conservative policy which has been quite general for many years.

One may be pardoned for suggesting that since vaccination is urged for protection against smallpox, that the Schick test should be used for determining the susceptibility to diphtheria, and also the employment of toxin-antitoxin as a preventive in the non-immune. Even if the city is not prepared to undertake this work, advice to parents is timely.

Diphtheria kills more children in Massachusetts than smallpox, and yet, under present well-known methods, is almost as controllable. Massachusetts had 885 cases of diphtheria reported during October of this year, and the number increased to 1185 in November. If these were smallpox figures, there would be general alarm. The mortality percentage in diphtheria is often higher than is found in smallpox epidemics of mild type.

If boards of health and family physicians are not efficiently dealing with a disease which is manageable to a large extent, the bogey of state medicine will become a living reality, for the people will demand it. Wherever there seems to be a failure to meet the demands of the people for relief, there will be some substitution for medical service. Note, for example, what Dr. Frothingham has said about osteopathy and chiropractice.

RÉSUMÉ OF COMMUNICABLE DISEASES NOVEMBER, 1921.

General Prevalence.

There were 5,421 cases of communicable diseases reported for this month. This represents moderate increases in the reported incidence of all the common communicable diseases.

Anterior Poliomyelitis was reported in 15 instances; total for previous month was 27 cases.

Chicken-pox.—There were 646 cases reported for this month, as compared with 248 for October. This is about the number expected for this month.

Diphtheria increased from 885 cases for October to 1,185 for this month. The reports were from all parts of the state, rather than from any particular locality. This high monthly incidence has not been reached in several years.

Dog-bite requiring antirabic treatment was reported 12 times.

Gonorrhea and Syphilis were reported in about the usual numbers—460 for the former, 208 for the latter.

Influenza.—There were 30 cases reported for the current month.

Measles jumped from 313 cases to 578 cases. This does not represent a large report for this disease at this period of the year.

Lobar Pneumonia.—There were 353 cases of lobar pneumonia reported for this month, as compared with 191 for last month. This represents the usual increase at this season of the year.

Scarlet Fever increased from 431 cases in October to 660 for this month. This is about the usual number reported at this time.

Smallpox.—One case was reported. This was part of the outbreak reported last month.

Tuberculosis, Pulmonary.—There were 505 cases reported during this month; total for last month, 499.

Typhoid Fever.—There were 59 cases of typhoid reported for this month. During November, 1920, there were 83 cases reported.

Whooping-cough.—There were 223 cases reported. This represents a small report.

RARE DISEASES.

Anterior Poliomyelitis was reported from Amesbury, 1; Ayer, 1; Boston, 2; Braintree, 1; Chelsea, 1; Fitchburg, 1; Hopedale, 1;

Boston Public Schools—Department of Medical Inspection

JULY, 1921

Chart Showing Periods of Exclusion From and Time of Readmission To Public Schools of Pupils and Teachers Who Have Had or Who May Have Been Exposed to Communicable Diseases

DISEASE	QUARANTINE PERIOD FOR PATIENT PRESCRIBED BY HEALTH DEPARTMENT	PATIENT TO BE EXCLUDED FROM SCHOOL	PUPILS OR TEACHERS EXPOSED TO BE EXCLUDED FROM SCHOOL*		REMARKS
			IF IMMUNE	IF NOT IMMUNE	
Acute Anterior Poliomyelitis (Infantile Paralysis)	For three weeks from date of onset	Until recovery, and at least three weeks from date of onset.	No exclusion.	For two weeks from date of last exposure.	Most communicable in early stages.
Chicken Pox	Until all crusts and open lesions have disappeared	Until all crusts and open lesions have disappeared.	No exclusion	For three weeks from date of last exposure.	Important because of possible confusion with Smallpox.
Diphtheria	Until two successive negative cultures from nose and throat have been obtained—the second culture to be taken from patient by agent of Health Department.	Until two successive negative cultures from nose and throat have been obtained—the second culture to be taken from patient by agent of Health Department.	For one week from date of last exposure or until evidence of two successive negative cultures obtained at interval of forty-eight hours is presented to and approved by school physician.		A previous attack does not necessarily confer immunity. Carriers should be isolated and released in the same manner as clinical cases. When the disease is discovered in classroom all children should be examined and those with sore throats excluded. Cultures should be taken by school physician of all intimate contacts. If second case occurs in classroom, cultures of all children should be taken.
Epidemic Cerebro-Spinal Meningitis	Until recovery—isolation to be not less than two weeks	Until recovery, and at least two weeks from date of onset.	For one week from termination of quarantine.		Infection apparently conveyed chiefly by carriers, hence necessity of excluding pupils who have been in close contact.
German Measles	Until eruption has disappeared	Until eruption has disappeared, at least eight days from onset.	No exclusion.	For three weeks from date of last exposure.	Important because of frequent confusion with Scarlet Fever
Influenza	No quarantine.	Until recovery—isolation until catarrhal symptoms have disappeared.	No exclusion.	For one week from date of last exposure.	Immediate rest in bed is important in preventing complications.
Measles	From onset of suspicious symptoms until eight days after appearance of eruption.	From onset of suspicious symptoms until ten days after disappearance of eruption.	No exclusion.	For two weeks from date of last exposure.	During outbreak all children having temperature over 99 degrees F., should be excluded and Health Department notified.
Mumps	Until all swelling and tenderness have disappeared.	Not less than three weeks from onset and only when one week has elapsed since subsidence of swelling.	No exclusion.	For three weeks from date of last exposure.	Very infectious.
Scarlet Fever	From beginning of suspicious symptoms until desquamation has ceased and there is no discharge from ears or nose, and until concomitant wounds or other open lesions have healed.	From beginning of suspicious symptoms until desquamation has ceased and there is no discharge from ears or nose, and until concomitant wounds or other open lesions have healed.	No exclusion.	For one week from date of last exposure.	When the disease is discovered in classroom all children should be examined and those with sore throats should be excluded and Health Department notified. Releases are made by medical inspector of the Health Department upon recommendation of attending physician.
Septic Sore Throat	No quarantine.	Until five days after disappearance of symptoms.	No exclusion.	For one week from date of last exposure.	Very apt to occur in epidemics due to milk contaminated by patient suffering from disease.
Smallpox	Until all scabs and crusts have disappeared and any open lesions of any character are absolutely healed	Until all scabs and crusts have disappeared and any open lesions of any character are absolutely healed.	No exclusion. Immunity here means satisfactory evidence of having had disease.	For eighteen days from date of last exposure. (Experience with the type of Smallpox now prevailing in the United States seems to make it probable that the period of incubation may be as long as 18 days.)	When disease is discovered in classroom, all pupils exposed who have not been successfully vaccinated within five years should be successfully vaccinated or excluded for a period of two weeks. All cases in Boston are removed to hospital.
Trachoma	No quarantine.	Whenever and so long as there is any conjunctivitis or visible pathological secretion in the eyes.			Chronic disease lasting for years. It manifests exacerbations from time to time characterized by active conjunctivitis and visible pathological secretions. Contacts should always be carefully examined
Typhoid Fever	Until temperature has been normal for ten days.	Until temperature has been normal for not less than two weeks.	No exclusion.	These pupils may be admitted under the observation of the school physician.	Food handlers are required to have two negative bacteriological examinations before being released.
Typhus Fever	Until patient has been absolutely freed from lice and from opportunity to be bitten by lice.	Until patient has been absolutely freed from lice and from opportunity to be bitten by lice.	For twenty days from date of last exposure.		All contacts are deloused and held for observation for twenty days.
Whooping Cough	For at least three weeks from date of onset.	Until one week from date of last characteristic cough and eight weeks from onset of disease.	No exclusion.	For two weeks from date of last exposure	During period of quarantine cases are under supervision of Health Department. After three weeks supervision cases are left to attending physician or family

* Evidence of previous attacks of communicable diseases must be satisfactory to the school physician.

Readmission to schools of pupils and teachers excluded on account of communicable disease is authorized only upon presentation of a certificate from the Health Department, its agent, or from attending physician.

The daily bulletin of the Health Department is sent to each school physician and principal who will carefully note releases. These releases may be considered as certificates of the Health Department.

The fact that a child is released from quarantine indicates that the Health Department considers danger of contagion has passed, but it does not necessarily mean that the patient is able to return to school. Often a pupil is in a debilitated condition after communicable disease, and his system susceptible to other ailments. Readmission rests with the school physician, and in some cases he may find it necessary for the child's welfare and the public health to advise parents not to allow the child to return to school until he has fully recuperated.

The period of exclusion for all communicable diseases not designated on this chart shall be left to the discretion of the school physician after consultation with the principal of the school.

Readmission to school after exclusion for Pediculosis will be authorized when condition is remedied.

Leominster, 1; Marblehead, 1; Northampton, 1; Norwood, 1; Reading, 1; Salem, 1; Walpole, 1. Total, 15.

Dog-bite requiring anti-rabic treatment was reported from Billerica, 2; Boston, 2; Brookline, 1; Chelmsford, 1; Everett, 1; Fall River, 2; Lowell, 1; Taunton, 2. Total, 12.

Encephalitis Lethargica was reported from Bedford, 1; Boston, 4; Danvers, 1; Milford, 1; Somerville, 1. Total, 8.

Epidemic Cerebrospinal Meningitis was reported from Belmont, 1; Beverly, 1; Boston, 11; Chicopee, 1; Lynn, 1; New Bedford, 1; Norwood, 1; Southbridge, 1. Total, 18.

Hookworm was reported from Boston, 1.

Malaria was reported from Holyoke, 1.

Pellagra was reported from Boston, 1.

Septic Sore Throat was reported from Boston, 8; Methuen, 1; New Bedford, 1; New-

buryport, 1; Westport, 1; West Springfield, 1; Winthrop, 1. Total, 14.

Smallpox was reported from Worcester, 1.

Tetanus was reported from Fitchburg, 1; Pittsfield, 1; Springfield, 1. Total, 3.

Trachoma was reported from Boston, 1; Cambridge, 1; Lynn, 1; Methuen, 1; Taunton, 1; Worcester, 1. Total, 6.

Trichinosis was reported from Worcester, 1.

NEWS ITEMS.

CARBON tetrachloride, popular as a non-explosive, cleansing agent, and also as a fire extinguisher, has been found by the Department of Agriculture to be an anthelmintic of value in animals. Experiments thus far conducted in treating human hookworm victims show favorable results. It may prove to be of value in other intestinal parasites.

TECHNICAL SURGICAL EXHIBIT. — On January 9th and 10th, 1922, there will be held at the Copley-Plaza Hotel, the second exhibition of the manufacturers and importers of surgical instruments and appliances. The first exhibition was held in Philadelphia last September and created a wide interest among the medical profession and hospital superintendents. Many new instruments and appliances will be shown and demonstrated by the leading manufacturers of this country, and the representatives of foreign manufacturers. The Boston Surgical Trade Association, which includes the leading retailers of this city, have made arrangements for this exhibition, and cordially invite all members of the profession to attend. Tickets of admission may be obtained from any of the local dealers mentioned on another page of the JOURNAL.

The Massachusetts Medical Society

NOTES FROM DISTRICT SOCIETIES.

WORCESTER DISTRICT MEDICAL SOCIETY.—The largest attended meeting of the Society for the year was held at St. Vincent's Hospital, Worcester, December 14, 1921, at 4.15 P.M. The program consisted of a number of short papers by members of the Hospital Staff.

Dr. Timothy J. Foley reported a case of Adeno-carcinoma of the Stomach associated with diabetes, with few stomach symptoms.

Dr. M. M. Jordan reported a case of Lead Encephalitis caused by drinking alcoholic distillates made in a still with a lead coil.

Dr. Clara Fitzgerald reported a series of three cases of spider bites, with sloughing of the tissues and a peculiar, swampy odor.

Dr. John T. McGillicuddy reported a series of cases where the specialist could aid the general practitioner in making a diagnosis.

Dr. A. E. O'Connell read a paper on X-ray Diagnosis of Duodenal Ulcer.

Dr. Stephen A. Bergin reported a case of Haematuria in the Newborn, caused by a Uric Acid Infarct of the Kidney.

The papers were discussed by Drs. Seeley, George, Abbott, Phelps, McEvoy, and Hunt.

On motion of Dr. Ernest L. Hunt, it was voted that, "The executive committee be empowered to coöperate with the Worcester Extension Course and such other organizations as they see fit to invite, to collaborate in entertaining Dr. Joseph Colt Bloodgood and conducting a public lecture in the interest of cancer control."

It is expected to hold this meeting some time in February.

Mr. G. H. Crosbie explained the recent agreement with the Society for group insurance.

After the meeting the new wing of the Hospital was inspected and then the members of the Society were served refreshments. On motion of Dr. John C. Berry, the Sisters and Trustees of the Hospital were given a vote of thanks for their hospitality.

At 7.15, the members were invited to attend the regular lecture of the Harvard Extension Course, given by Dr. John L. Morse, on Acute Respiratory Diseases in Children.

One hundred and five members of the Society were present.

ESSEX NORTH DISTRICT MEDICAL SOCIETY.—A semi-annual meeting of this Society will be held in Centre Church vestries, Main Street, corner of Vestry Street opposite City Hall, Haverhill (Tel. 548), Wednesday, January 4, 1922. Dinner will be served at 12 sharp. Following the dinner the business meeting will occur. The following papers will then be presented:

L. H. Spooner, M.D., of Boston, on Staff of Out-Patient Department, Massachusetts General Hospital, will talk on his specialty, "Specific Diagnosis and Treatment of Pneumonia." (40 minutes.)

W. Whittemore, M.D., of Boston, on "The Surgical Treatment of Acute and Chronic Empyema." (40 minutes.)

J. W. Bartol, M.D., of Boston, President of the Massachusetts Medical Society, will be present as our guest, and address the Society.

Discussions are invited upon the above matters at the end of the program. (5 minutes each.)

The annual assessment may be paid at this meeting.

F. W. SNOW, M.D., *Pres.*
J. FORREST BURNHAM, M.D., *Sec.*,
567 Haverhill St., Lawrence, Mass.

REPORT FROM THE HAMPSHIRE DISTRICT.—Dr. Joseph D. Collins, Laryngologist, and Mrs. Collins, of Northampton, left New York December 10, on the S. S. *"Olympic,"* for France, where they will begin an extended tour lasting about six months. After spending some time in Switzerland, where they will participate in the winter sports, they will visit the Riviera, and late in January will take a Mediterranean trip which will include the Nile Valley and the Holy Land. Dr. and Mrs. Collins expect to return to Northampton in April, 1922.

Dr. Benjamin White, director of the biological laboratories of the State Board of Health, gave a lecture and demonstration of the Schick test at the High School Assembly Hall, Northampton, on December 3. There was a large attendance of mothers and children, who listened attentively to the discussion. Dr. White subsequently tested forty-eight children of school age, forty-five of whom were later read by Dr. H. G. Oliver, district health officer of the Connecticut Valley, as positive. As a result of the meeting, the enthusiasm was so pronounced that the Board of Health of Northampton is instituting a free clinic as a public health measure, beginning December 27, and continuing every day during the holiday vacation, and for one month thereafter, at the Hampshire County Public Health Rooms, six local physicians having volunteered their services.

The annual meeting of the Dickinson Hospital Medical Association was held in the Cooley Dickinson Hospital, Northampton, on December 5. The following officers were elected: President, Dr. F. H. Smith, of Hadley; Vice-President, Dr. J. G. Hanson; Secretary-Treasurer, Dr. C. T. Cobb; Executive Committee, the officers and Drs. E. H. Copeland and G. I. Hickey. Clinical reports of cases were read by Drs. Smith, Cobb and Hanson, which promoted a general discussion.

E. E. THOMAS, M.D.

Miscellany.

HARVARD RESEARCH CLUB MEETING.

AT a recent meeting of the Research Club of the Harvard Medical School, Dr. Drinker gave a lecture on "New Methods and Results in the Study of Heart Failure and Pulmonary Edema."

By way of introduction, he said that clinical observations have shown that in patients with heart disease the vital capacity of the lungs is frequently less than normal, and that the decrease in the vital capacity bears a close relation to the development of dyspnea. As the tendency to dyspnea increases, the vital capacity usually falls, and in patients who are bedridden on account of shortness of breath, the vital capacity is rarely more than 30 per cent. of normal. The determination of the vital capacity has, therefore, considerable practical significance, since it serves as a guide to the general condition of the patient and often indicates changes in the functional condition of the circulation and respiration that are in harmony with the symptoms, but are not necessarily suggested by changes in the physical signs.

As to the cause of this condition, he said that in advanced cases, it is due in part to pulmonary edema, pleural effusion, hepatic enlargement, and similar obvious factors. But in those cases without any physical signs and yet which show a decreased vital capacity, there must be some other factor. One suggestion is that in such cases there may be an increase of pressure in the pulmonary circulation, with engorgement of the alveolar capillaries of the lungs. As the alveoli are extremely vascular, such a condition might produce a stiffening, or *"Lungstarrheit,"* in the sense of von Basch, which might interfere with their easy expansion and collapse in respiration. There might also be some protrusion of the distended capillaries into the alveoli, and thus a decrease in the volume of residual air of the lungs.

He then pointed out that clinical experience contributes several facts which are in harmony with the theory that the interference with the ventilation, which shows itself by a decrease in the vital capacity, is due to a chronically increased filling of the pulmonary veins and capillaries. Thus, mitral stenosis is characterized by an early onset of the tendency to dyspnea and an associated low vital capacity. In aortic insufficiency, there is little tendency to dyspnea, and the vital capacity remains high until a relative mitral insufficiency develops and the pulmonary circulation is affected. Also, pleural effusions and pulmonary edema, with râles, are accepted signs of cardiac weakness. These probably find their cause in congestion of the pulmonary capillaries, and it is logical to suppose that their appearance is preceded by a phase in which the pressure may be only slightly higher than normal, but not yet sufficient to bring about exudation into the alveoli. According to the theory suggested, even at this stage, the vascular engorgement might interfere with the movements of the lungs and with the size of the alveoli, and cause a decrease in the vital capacity. As a result of these clinical observations, animal experiments were designed in order to determine whether blood stasis in the pulmonary circulation produces any effect on the ventilation of the lungs. For if such a change does produce a limitation or reduction of the ventilation, then the theory that the reduction of the vital capacity of the lungs in heart disease is due to an increased filling of

the pulmonary circulation, receives considerable support.

He then described his experiments on cats, and the manner in which they were performed. A method was devised for compressing and releasing the pulmonary veins without any manipulation of the lungs. "An oval section of the chest wall, immediately over the heart, is removed, the pericardium incised anteriorly, and the cut margins reflected and sewed to the edges of the chest wall. With proper technique, the pleural cavity is rendered air-tight, permitting, for hours, independent respiration of the animal. In such a preparation the heart and great vessels lie exposed *in situ*, resting posteriorly on a pericardial sling." A method was also devised for measuring the air that entered the lungs under different conditions. "In brief, provision is made to collect all the air delivered to an anesthetized, curarized animal. This air reaches the animal rhythmically, but under relative constant conditions of pressure and flow. It is collected in two spirometers, and the total amount of air which these two receive will check closely in different periods of equal length. But if the pulmonary air space is decreased, or if the movements of the lung tissue are restricted, the distribution of the collected air will at once change, a smaller amount being received by the expiration spirometer, and a larger amount by the overflow spirometer." A ligature which could be tightened or loosened at will by a clamp, was passed around the pulmonary veins and thus the flow of blood from the lungs to the heart could be hindered at will. Also it was so arranged that the pressure in the pulmonary circulation could be determined.

A series of experiments was then described, the results of which will be given in brief. The experiments were of two groups, one in which there was essentially no permanent change in the lungs as a result of the manipulations, and those in which extensive pulmonary congestion with edema into the air passages was produced. The two sets of experiments show that if the pulmonary veins are obstructed to such a degree that congestion of the pulmonary vessels, without exudation, is produced, there results interference with entrance of air into the lungs which is relieved as soon as the obstruction is removed. But if the circulatory conditions are such that exudation of fluid out of the vessels into tissues and air passages is produced, a permanent interference with the entrance of air into the lungs results.

He said that there appear to be two ways in which pulmonary obstruction can act in order to encroach upon air space in the lung. First, the dilatation of the capillaries may actually take up alveolar space which air could occupy under normal alveolar conditions. When the chest is closed and the lungs expanded so as to fill all the available space, it is clear that the extra room which excess blood may occupy can only be obtained at the expense of the alveolar space. The size of the lungs can only be changed under these conditions by pressure great enough to move the chest wall and diaphragm, and it is doubtful whether the right ventricle is capable of accomplishing this result. When, however, the chest is open, blood may cause the lungs to swell outward, and under such circumstances the alveolar space may be very little changed and the amount of air entering the lungs not much altered. His experiments illustrated these points.

He brought out the comparison of the experimental work and the clinical observations. The clinical condition which has the closest analogy to his experiments is mitral stenosis. He said, "They are, indeed, essentially similar, for in mitral stenosis there is an obstruction to the flow of blood leaving the left auricle, while in our experiments an obstruction was produced to the entrance of the blood into the left auricle. Both conditions produce the same changes in the hemodynamics of the circulation in the lungs. The inability to breathe deeply and the low vital capacity, which is one of the outstanding features of mitral stenosis at this stage, may well be explained by engorgement of the pulmonary vessels and lung rigidity, just as these factors explained the interference with the entrance of air into the lungs in our experiments. At a later stage of mitral stenosis, physical examination reveals râles in the air passages and fluid in the pleural cavities. These indicate actual exudation of fluid out of the vessels, and the conditions are similar to those typified by Experiment 3, in which extensive areas of pulmonary congestion were found." He further pointed out that in clinical cases, myocardial weakness probably enters into the conditions. He said in regard to this, that it is not at all improbable that weakening of the myocardium alone may be enough to produce the same effects, and there is clinical evidence in harmony with this. "Clinical experience, as well as the experiments which have been described, indicates that in the first stages there may be interference with entrance of air into the lungs without the production of physical signs of lung involvement. At a later stage, pulmonary edema and pleural effusion will take place."

This paper, complete in all details, will be found in the January number of *Journal of Experimental Medicine*.

At a meeting of the Research Club of the Harvard Medical School on Friday, December 9, 1921, a number of short addresses were given.

Dr. J. H. Means talked on the subject, "Metabolism Curves in Various Types of Myxedema and the Effect of Thyroid Feeding on Metabolism." He brought out the fact that cases of submetabolism are infrequent. He said

that only five per cent. of his series of cases showed a low metabolism, and of these only about half were suspected of having myxedema before the metabolism tests were made. Any metabolism 30 or 40 per cent. below the normal, means that there is something definitely wrong with the endocrines. He also said that he believed that in a few cases x-ray radiation had been the cause of the starting of a condition of myxedema. However, these cases responded rapidly to treatment with thyroid extract.

Speaking on "Electrocardiograms in Myxedema," Dr. P. D. White said that there is no true electrocardiogram of myxedema. But the "T" wave tends to be lower than normal. However, there are other conditions that cause this same lowering of the "T" wave. Digitalis is, perhaps, the most common. Myocardial weakness is also a condition that causes it to take place. As a rule, the lower the metabolism, the lower the "T" wave tends to become.

The anemia of myxedema, as Dr. G. R. Minot brought out in his talk on "The Anemia of Myxedema," was due to a defective or actual decrease in the blood formation which occurs along with other decreased functions of the body. At times, the anemia may be marked, resembling somewhat that seen in pernicious anemia. Rarely one sees purpuric conditions with decreased platelets, or hemorrhages with a prolonged bleeding time. Dr. Minot also talked on the "Relation of Polycythemia to Leukemia." He said that there were some things in common between the two diseases. He said that there were three cases reported in the literature where polycythemia had gone into a condition of leukemia. He then told of a case that he himself had observed. In this case there was at first polycythemia, which later became a myelogenous leukemia and had died because of lack of red cell formation. In concluding, he said that it seemed strange that one did not see cases more often that presented features of both diseases, for in a few cases there does seem to be a definite relation between the two conditions.

Dr. Francis Rackemann spoke on "The Mechanism of Hay-fever." He said that he was speaking of the seasonal or ragweed type of hay-fever. He compared it to the action of anaphylaxis in a rabbit. Patients with hay-fever will give a reaction when the protein is applied to the skin or mucous membrane. He said that the antibodies certainly play a part, but just how, is not known. Although one can sensitize a rabbit with serum of the blood of a patient with hay-fever, as yet no one has demonstrated the presence of antibodies in the serum. In fact, it has been shown that there are none there. Dr. Rackemann, working on the problem, has come to the conclusion that there are no precipitans present, either. Therefore, any study of the mechanism of hay-fever is very difficult. The skin tests and the reactions of the patient to treatment is the only way that it can be studied at present. He then showed a table comparing the results of treatments on patients in 1920 and in 1921. This showed that it did not necessarily follow that the larger the dose the more complete the cure. For sometimes, in 1920, a small dose would give a satisfactory cure, and in 1921, a large dose would give an unsatisfactory result. This seems to be more evidence against the antibody theory. He further stated that he had never seen a positive skin reaction fully disappear under treatment.

FEWER FLAGRANT VIOLATIONS OF FOOD AND DRUGS LAW.

THE manufacturer who violates the Federal Food and Drugs Law today is an artist compared with the violator of a few years ago. He does not offend so frequently or so flagrantly, but he is harder to catch. The gross and crude violations so frequently found during the early days of the law's enforcement have given place to more subtle forms that, to be detected, require more careful investigation, says the Chief of the Bureau of Chemistry, United States Department of Agriculture, in his annual report. On the whole, violations are much less frequent. Only a small portion of the food and drugs in interstate or foreign commerce, is either adulterated or misbranded.

The activities of the year on patent medicines included 866 actions directed mainly toward the elimination of false and fraudulent claims on the labels regarding curative powers for a great variety of diseases.

So-called lithia waters containing only the merest traces of lithium, but alleged to be of the greatest therapeutic value because of their lithium content, have been virtually eliminated from the market. Interstate commerce in mineral waters and other drugs alleged to contain radium, which were put on the market following the announcement that radium effected wonderful cures, threatened to develop to large proportions, but was stopped before it attained much momentum.

Effective campaigns have been carried on to eliminate from interstate commerce shipments of milk and cream highly contaminated with bacteria. Some contaminated mineral springs have been closed, while in others the manner of handling the product and of purifying it have been revolutionized.

BIRTHS AND BIRTH RATES IN THE BIRTH REGISTRATION AREA: 1920.

THE Department of Commerce, through the Bureau of the Census, announces that in the

year 1920 there were 1,508,874 births reported within the birth registration area, which inincludes 23 states and the District of Columbia, the estimated population of this area on July 1, 1920, being 63,659,441, or 59.8 per cent. of the total population of the United States. The birth rate was 23.7 per 1,000 population, which is considerably higher than the rate (22.3) for the previous year, but is below the rate (25) for 1916, which may be looked upon as a more normal year, as it preceded the influenza epidemic and the entrance of the United States into the war.

For 1920, the highest birth rate (31.7) for the white population, is found for North Carolina, and the lowest (18.3) for California, while for the colored (which includes Negroes, Indians, Chinese and Japanese), the highest rates are 39.5 and 39.3, respectively, for Washington and California. The next highest rate for the colored (31.3) is for North Carolina. The lowest rates for the colored (disregarding the very low rates in a few of the New England states in which the Negro population is small) are for Kansas (17.1) and Kentucky (17.6).

For Massachusetts, there were 91,692 white and 1,295 colored births in 1920. The birth rate was 23.6 per 1,000 population, as compared with 22.9 in 1919.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

The increase in the work which began in the fall has continued through November, a total of 23,321 visits being made and 2,346 new patients registered. The figures, however, compared with those of November, 1920, show a continuation of the excellent health conditions which have prevailed throughout 1921.

Pneumonia has commenced to increase, as is usual at this time of the year, 69 new cases being reported. There were also increases in bronchitis—71 new cases; grip, 24, and tonsillitis, 59.

Typhoid fever is still with us, four new cases being registered this month.

One new case of infantile paralysis has come under care.

There were 22 new cases of measles and 62 of accidents, that is, burns, traumatisms, etc., and 69 of skin diseases.

DISEASES OF THE HEART.

Thirty new patients with diseases of the heart were registered during the month. The daily average of such cases under care is about 49, the patients ranging from old men and women to very young children. Many of these cases are hopeful; all require pretty close attention, — often nursing care gives the only relief from pain. Again, where the patient is a child—and 71 of the 325 such patients cared for in 1920 were children — in addition to carrying out the doctor's orders for treatment, the nurse must help the mother or family to control the patient and keep him to the routine and quiet which are essential. When the heart weakness is the result of some correctible thing, such as diseased tonsils, adenoids, etc., the nurse's duty is to explain the facts and help get the defect corrected. This is not always easy of accomplishment.

THE WEEK'S DEATH RATE IN BOSTON.

During the week ending December 17, 1921, the number of deaths reported was 199 against 208 last year, with a rate of 13.70. There were 24 deaths under one year of age against 35 last year.

The number of cases of principal reportable diseases were: Diphtheria, 85; Scarlet Fever, 40; Measles, 58; Whooping Cough, 2; Tuberculosis, 28;.

Included in the above, were the following cases of non-residents: Diphtheria, 6; Scarlet Fever, 5; Tuberculosis, 4.

Total deaths from these diseases were: Diphtheria, 4; Measles, 1; Tuberculosis, 7.

Correspondence.

MODIFICATION OF THE ABDUCTION TREATMENT.

283 Lexington Ave., New York,
December 16, 1921.

Mr. Editor:

I have read with interest Dr. Moore's second paper on his modification of the abduction treatment. This was originally suggested as an especial adaptation to old age, since it permitted the sitting posture, but it has now become, apparently, in his hands, a routine treatment for all cases of fracture of the neck of the femur. Admitting that the mechanism of the hip-joint may be utilized to apply surgical principles as efficiently in flexion as in extension, and that the contractions that might be supposed to follow prolonged fixation in this attitude are of little consequence, there are still many theoretical and practical advantages of the original method over this modification.

Primarily, it is more definite in detail, and much easier to apply. By direct manual traction the shortening is reduced, as determined by measurement.

The limb having been rotated slightly inward, is then abducted to the normal limit, as indicated by the demonstrated range on the sound side, and, as the trunk and limbs are symmetrical, the correspondence of the anatomical landmarks on the two sides may be easily verified before fixation. Thus the liability to error in adjustment of the fragments, and particularly of displacement during the application of the spica, should be less than in the procedure in which the thigh must be supported in the flexed position by the hand of an assistant.

In complete extension, the fractured neck is forced forward against the resistant anterior portion of the capsule, and in this attitude the plaster spica serves as a splint to check the tendency of the thigh fragment to sink backward under the influence of gravity if the internal fixation is insecure.

Complete extension arches the lumbar spine forward, and the advantage of slight lordosis, both from the standpoint of comfort and as a preventive of relaxation of the sacral articulations will, I think, be admitted.

In extension, as contrasted with flexion, there need be no pressure on the sacrum or other dependent parts; the patient may be easily turned, and may lie with comfort in the ventral position. The elevation of the head of the bed, and the frequent change of attitude are effective in preventing bed sores and hypostatic congestion.

For these obvious advantages it seems to me that the sitting posture is hardly a sufficient compensation.

The abduction treatment, as contrasted with traditional teaching, is radical and revolutionary simply because, being adequate for its purpose, it applies the surgical principles that govern the treatment of all other fractures, namely, to assure, as far as may be, the essentials of functional repair. It is based on the proposition that the greater the obstacles to success, nutritive or otherwise, the more essential is favorable opportunity; consequently, that the result of fracture of the neck of the femur is more directly determined by the quality of the treatment than is that of any other injury of its class, not because opportunity assures success, but because without opportunity failure is inevitable.

Conventional practice is an adaptation to inadequate mechanics. Ostensibly it is conducted in the interest of the individual on the assumption that the treatment of the fracture, as such, would, in the majority of cases, endanger life or the repair of the injury, or would be useless, because of the incapacity of the tissues for repair.

The effect of this teaching cannot be better illustrated than by the statement in Dr. Moore's paper that, of 120 consecutive cases of ununited fracture of the hip, observed at the Mayo Clinic, not one had received proper treatment at the time of the injury.

Dr. Moore's paper is valuable evidence in favor of efficient treatment of the fracture as a conservative measure, as opposed to "life-saving" neglect. For it may be noted that in a total of 48 cases of an unfavorable type all but six were treated on surgical principles. Of the six untreated patients, five died. In the other group there were but two deaths, one of "decubitus."

In 34 of the cases in which treatment was applied, the fracture was intracapsular. There was but one death, and in 20 of the 33 cases the result was "good."

Thus, there was a death rate of but 3 per cent., and a satisfactory result in 60 per cent. in a class of cases of which it has been taught for generations that the treatment of the fracture as a fracture is both dangerous and useless.

ROYAL WHITMAN.

A NEW ASSOCIATION OF PHYSICIANS.

November 21, 1921.

Mr. Editor:—

I wish to say a word of commendation for the letter of Dr. George W. Ellison, of Spencer, published in your issue of November 10.

It meets my views exactly and I am sure touches a point of vital interest to all country or small town physicians, whose own financial welfare has to be coincident with their intellectual advancement and the welfare of the community as a whole.

Our material interests are very poorly looked after at present, both financial and legislative: our privileges and perogatives are being taken from us day by day. A mass of legislation, which many of us consider hostile and injurious to our interests, is being constantly proposed and not opposed, or feebly opposed, by our alleged spokesmen. We get no help or promise of help in these matters from our State Society or our National Society.

Therefore, the time seems ripe to me to get together and form an Association of the active, practicing physicians of this State, whether they be members of the Massachusetts Medical Society or not; the function of said Association to be purely and solely the consideration of the above-mentioned problems and the taking of such action as may seem wise.

Very truly yours,

CHARLES L. UPTON, M.D., Shelburne Falls, Mass.

A POLISH, NOT A PRUSSIAN, PHYSICIAN.

November 19, 1921.

Mr. Editor:—

I, the undersigned, wish to write to you a few lines, to correct the statement of the founder of New England Hospital for Women and Children, of Dr. Marie Elizabeth Zakszewska, that she was born from Polish parentage, in the part of Poland that was taken by Germany between the years 1771-75, when Poland was divided between Germany, Austria and Russia. Now this part of Prussia where Dr. M. E. Zakszewska was born, is again under the Polish Government, therefore, she should be known as the Polish, instead of a Prussian physician. Will you kindly publish this correction in your paper.

Very truly yours,

MARY STYRSKA, M.D., Fall River, Mass.

BOOKS FOR REVIEW.

THE JOURNAL acknowledges the receipt of the following books for Review:—

The Life of Jacob Henle.—By Victor Robinson. Published by Medical Life, New York, N. Y. 117 Pages. Price $3.00.

A Manual of Practical Anatomy. Part II.—By Thomas Walmsley. Published by Messrs. Longmans, Green & Co., New York, N. Y. 233 Pages. Price $3.25.

Manual of Diseases of the Stomach.—By William MacLellan. Published by Messrs. Longmans, Green & Co., New York, N. Y. 392 Pages. Price $7.50.

Acute Epidemic Encephalitis.—By various authors. Published by Paul B. Hoeber, New York, N. Y. 258 Pages. Price $2.50.

Clinical Surgical Diagnosis.—By F. de Quervain. Published by William Wood & Co., New York, N. Y. 914 Pages. Price $14.00.

Preventive Medicine and Hygiene.—By Milton J. Rosenau. Published by D. Appleton & Co., New York, N. Y. 1567 Pages. Price $10.00.

NOTICE.

MEDICO-LEGAL COMMITTEE APPOINTED IN HAVERILL.—At the November meeting of the Pentucket Association of Physicians, composed of about sixty of those practicing in Haverhill, Mass. and its immediate vicinity, it was voted to appoint a "Medico-Legal Committee," this committee to be particularly concerned with matters of State and National Legislation. The following committee was appointed: Drs. E. W. Bullock, Francis W. Anthony, Wm. D. McFee, Frederick Sweetsir and Florence Sullivan with Dr. George M. Atwood *ex-officio*. A committee on matters of Public Health was also appointed consisting of Dr. Constantine Popoff, Dr. John E. Bryant and Dr. F. H. Coffin.

CORRECTION.

The notice reporting the death of Dr. Leander Morton, in the issue of December 22, should have read, Dr. Leander Morton Farrington.